

FERC FORM 1 SUPPLEMENT**ANNUAL REPORT**

OF THE

NAME

The Empire District Electric Company

(Here show in full the exact corporate, firm or individual name of the respondent)

LOCATED AT

106 E Main St Gravette AR 72736

(Here give the location, including street and number of the respondent's main business office within the State)

COMPANY #

9

(Here give the APSC-assigned company number)

TO THE

ARKANSAS PUBLIC SERVICE COMMISSION**COVERING ALL OPERATIONS****FOR THE YEAR ENDING DECEMBER 31, 2020**

RECEIVED
4/23/21 MB
ARK PUBLIC SERVICE COMM
AUDIT SECTION

REPORT TO ARKANSAS PUBLIC SERVICE COMMISSION

In order to satisfy the filing requirements of the Arkansas Public Service Commission, these supplemental schedules will be filed annually with a copy of the Federal Energy Regulatory Commission Form 1. One complete copy will be filed with each, the Utilities Division and the Tax Division of the Arkansas Public Service Commission on or before March 31 immediately following the year being reported.

GENERAL INSTRUCTIONS, DEFINITIONS, ETC.

1. Two (2) copies of this report, properly filled out and verified shall be filed with the Utility Division of the Arkansas Public Service Commission, Little Rock, Arkansas, on or before the 31st day of March following the close of the calendar year for which the report is made.
2. This form of annual report is prepared in conformity with the Uniform System of Accounts for Public Utilities prescribed by the Public Service Commission and all accounting words and phrases are to be interpreted in accordance with the said classification.
3. The word "respondent" in the following inquiries means the person, firm, association or company in whose behalf the report is made.
4. Instructions should be carefully observed, and each question should be answered fully and accurately. Where the word "none" truly and completely states the fact, it should be given to any particular inquiry.
5. If any schedule does not apply to the respondent, such fact should be shown on the schedule by the words "not applicable."
6. Except in cases where they are especially authorized, cancellations, arbitrary check marks, and the like must not be used either as partial or entire answers to inquiries.
7. Reports should be made out by means which result in a permanent record. The copy in all cases shall be made out in permanent black ink or with permanent black typewriter ribbon. Entries of a contrary or opposite character (such as decreases reported in a column providing for both increases and decreases) should be shown in red ink or enclosed in parentheses.
8. This report will be scanned in. Please bind with clips only.
9. Answers to inquiries contained in the following forms must be complete. No answer will be accepted as satisfactory which attempts by reference to any paper, document, or return of previous years or other reports, other than the present report, to make the paper or document or portion thereof thus referred to a part of the answer without setting it out. Each report must be complete within itself.
10. In cases where the schedules provided in this report do not contain sufficient space or the information called for, or if it is otherwise necessary or desirable, additional statements or schedules may be inserted for the purpose of further explanation of accounts or schedules. They should be legibly made on paper of durable quality and should conform with this form in size of page and width of margin. This also applies to all special or unusual entries not provided for in this form. Where information called for herein is not given, state fully the reason for its omission.
11. Each respondent is required to send in connection with its report to this Commission's Utilities Division, one (1) copy of its latest annual report to stockholders.
12. Schedules supporting the revenue accounts and furnishing statistics should be so arranged as to effect a division in the operations as to those inside and outside the state.
13. Answers to all inquiries may be in even dollar figures, with cents omitted and with agreeing totals.
14. Each respondent should make its report in duplicate, retaining one copy for its files for reference, in case correspondence with regard to such report becomes necessary. For this reason, several copies of the accompanying forms are sent to each utility company concerned.

REPORT TO ARKANSAS PUBLIC SERVICE COMMISSION

LETTER OF TRANSMITTAL

To: Arkansas Public Service Commission
Post Office Box 400
Little Rock, Arkansas 72203-0400

Submitted herewith is the annual report covering the operation of The Empire District Electric Company
(Company)
of 106 E Main St Gravette AR 72736 for the year ending December 31, 2020. This report is submitted in
(Location)
accordance with Section 51 of Act 324 of the 1935 Acts of Arkansas.
The following report has been carefully examined by me, and I have executed the verification given below.

Tisha A. Sanderson
(Signature)

Vice-President - Finance & Administration
(Title)

VERIFICATION

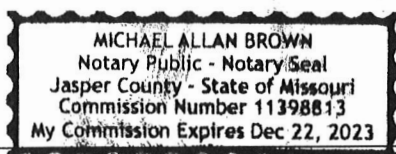
STATE OF)
) ss.
COUNTY OF)

I, the undersigned, Tisha A. Sanderson, Vice-President - Finance & Administration of the
(Name and Title)
(Company)

been prepared under my direction from the original books, papers, and records of said utility: that I have carefully examined the same, and declare the same a complete and correct statement of the business and affairs of said utility in respect to each and every matter and thing set forth, to the best of my knowledge, information, and belief; and I further say that no deductions were made before stating the gross revenues, and that accounts and figures contained in the foregoing statements embrace all of the financial transactions for the period in this report.

Tisha A. Sanderson
(Signature)

Subscribed and sworn to before me this 23rd
day of April 2021
My Commission Expires 12-22-23



[Signature]
(Signature of Notary)

REPORT TO ARKANSAS PUBLIC SERVICE COMMISSION

Give the name, title, office address, telephone number and e-mail address of the person to whom any correspondence concerning this report should be addressed:

Name Tisha A. Sanderson Title Vice President of Finance & Admin

Address P.O. Box 127 Joplin MO 64802

Telephone Number 417-625-5100

E-Mail tisha.sanderson@libertyutilities.com

Give the name, address, telephone number and e-mail address of the resident agent:

Name The Corporation Company Telephone Number _____

Address 620 West 3rd St Little Rock AR 72201

E-Mail _____

IDENTITY OF RESPONDENT

1. Give the exact name by which respondent was known in law at the close of the year. Use the initial word "The" only when it is part of the name:

The Empire District Electric Company

2. Give the location (including street and number) of (a) the main Arkansas business office of respondent at the close of the year, and (b) if respondent is a foreign corporation, the main business office if not in this state:

(a)

(b) 602 S. Joplin Ave, Joplin MO 64801

3. Indicate by an **x** in the proper space (a) the type of service rendered, and (b) the type of organization under which respondent was operating at the end of the year.

(a) ☒ Electric, ☐ Gas, ☐ Water, ☐ Telephone, ☐ Other

(b) ☐ Proprietorship, ☐ Partnership, ☐ Joint Stock Association,
☒ Corporation, ☐ Other (describe below):

4. If respondent is not a corporation, give (a) date of organization, and (b) name of the proprietor or the names of all partners, and the extent of their respective interest at the close of the year.

Not Applicable

(a)

(b)

5. If a corporation, indicate (a) in which state respondent is incorporated, (b) date of incorporation, and (c) designation of the general law under which respondent was incorporated, or, if under special charter, the date of passage of the act:

(a) Kansas

(b) October 16, 1909

(c) Kansas General Corporation Code

6. State whether or not respondent during the year conducted any part of its business within the State of Arkansas under a name or names other than that shown in response to inquiry No. 1 above, and, if so, give full particulars:

Due to the Company's rebranding efforts in 2020, the d/b/a name was changed to Liberty-Empire.

7. State whether respondent is a consolidated or merged company. If so, (a) give date and authority for each consolidation or merger, (b) name all constituent and merged companies, and (c) give like particulars as required of the respondent in inquiry No. 5 above:

(a) January 1, 2017 Merged with Liberty Utilities

(b) September 1, 1944

(c) Ozark Utilities Company - Lawrence County Water, Light & Cold Storage Company
Benton County Utilities Corp

(d) Missouri - November 12, 1924

Missouri - August 9, 1909

Arkansas - February 12, 1926

8. State whether respondent is a reorganized company. If so, give (a) name of original corporation, (b) date of reorganization, (c) reference to the laws under which it was reorganized and (d) state the occasion of the reorganization, whether because of foreclosure of mortgage or otherwise, giving full particulars. No

(a)

(b)

(c)

(d)

9. Was respondent subject to a receivership or other trust at any time during the year? No
If so, state:

(a) Name of receiver or trustee: _____

(b) Name of beneficiary or beneficiaries for whom trust was maintained:

(c) Purpose of the trust: _____

(d) Give (1) date of creation of receivership or other trust, and (2) date of acquisition of respondent: (1) _____ (2) _____

10. Did the respondent act in any of the capacities listed in Paragraph (a) below during the past year? No If so,

(a) Indicate the applicable one by an **X** in the proper space:

() Guarantor, () Surety, () Principal--obligor to a surety contract,
() Principal--obligor to a guaranty contract.

- (b) Insert a statement showing the character, extent, and terms of the primary agreement or obligation, including (1) names of all parties involved, (2) extent of liability of respondent, whether contingent or actual, (3) extent of liabilities of the other parties, whether contingent or actual, and (4) security taken or offered by respondent.

DIRECTORS AND COMPENSATION

Give the name and office addresses of all directors at the close of the year, and dates of beginning and expiration of terms. Chairman (*) and Secretary (**) marked by asterisks.

Item No.	Name of Director	Office Address	Date of Term		Compensation
			Beginning	End	
1	Nicole R. Brown-See Note 1	Joplin, Missouri	6/7/19	7/1/20	5,750
2	Kenneth R. Allen-See Note 1	Fayetteville, Arkansas	6/7/19	10/1/20	8,750
3	John Thompson-See Note 1	Jackson, Missouri	6/7/19	-	8,750
4	Ian Robertson	Oakville, Ontario, Canada	6/7/19	7/1/20	-
5	Anthony "Johnny" Johnston	Oakville, Ontario, Canada	2/1/19	6/1/20	-
6	Arun Banskota	Oakville, Ontario, Canada	7/1/20	-	-
7	Alan D. Marble-See Note 1	Neosho, Missouri	7/1/20	-	2,500
8	Paula Baker-See Note 1	Joplin, Missouri	10/1/20	-	-

Note 1 - Independent non-management directors. Management directors are not compensational for board service.

PRINCIPAL OFFICERS AND KEY MANAGEMENT PERSONNEL

Give the title of the principal officers, managers and key personnel, the names and office addresses of persons holding such positions at the close of the year, and the annual salary of each.

Item No.	Title	Name of person holding office at close of year	Office Address	Annual Salary
1	President	David Swain	Joplin, Missouri	278,476
2	VP-Finance & Admin	Tisha Sanderson	Joplin, Missouri	198,915
3	VP-Customer Experience	Brent Baker-Left 4/30/2020	Joplin, Missouri	77,987
4	VP-Operations-Electric	Tim Wilson	Joplin, Missouri	214,531
5	VP-Operations-Gas	Michael Beatty	Joplin, Missouri	208,728
TOTAL				\$ 978,637

ELECTRIC OPERATING REVENUES (Account 400) - ARKANSAS ONLY

1. Report below operating revenue for each prescribed account, and manufactured gas revenues in total.
2. Report number of customers, columns (g) and (h), on the basis of meters, in addition to the number of flat rate accounts, except that where separate meter readings are added for billing purposes, one customer should be counted for each group of meters added. The average number of customers means the average of twelve figures at the close of each month.
3. If previous year (columns (d), (f), and (h)), are not derived from previously reported figures, explain any inconsistencies in a footnote.
4. Commercial and Industrial Sales, Account 442, may be classified according to the basis of classification (Small or Commercial, and Large or Industrial) regularly used by the respondent if such basis of classification is not generally greater than 1000Kw of demand. (See Account 442 of the Uniform System of Accounts. Explain basis of classification in a footnote.)
5. Include unmetered sales. Provide details of such sales in a footnote.
6. This Commission requires a reporting by Kwh rather than Mwh.

Line No.	Acct. No.	Title of Account	OPERATING REVENUES		KILOWATT HOURS SOLD		AVG NO OF CUSTOMERS PER MONTH	
			Amount for Year	Amount for Previous Year	Amount for Year	Amount for Previous Year	Number for Year	Number for Previous Year
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1		Sales of Electricity						
2	440	Residential Sales	5,438,325	5,095,960	43,464,532	43,713,236	4,122	3,962
3	442	Commercial & Industrial Sales						
4		Small (or Commercial) (See Instr. 4)	3,218,335	3,091,045	31,170,646	32,580,995	689	687
5		Large (or Industrial) (See Instr. 4)	6,524,213	6,766,936	83,164,346	90,785,904	9	9
6	444	Public Street & Highway Lighting	81,917	79,027	788,176	802,016	30	30
7	445	Other Sales to Public Authorities	582,830	592,267	6,756,810	7,578,357	84	83
8	446	Sales to Railroads and Railways						
9	448	Interdepartmental Sales	-	-	-	-		
10		TOTAL Sales to Ultimate Consumers	15,845,620	15,625,234	165,344,510	175,460,508	4,934	4,771
11	447	Sales for Resale						
12		TOTAL Sales of Electricity	15,845,620	15,625,234	165,344,510	175,460,508	4,934	4,771
13	449.1	(Less) Provision for Rate Refund						
14		TOTAL Rev. Net of Prov. for Refunds	15,845,620	15,625,234	165,344,510	175,460,508	4,934	4,771
15		Other Operating Revenues						
16	450	Forfeited Discounts						
17	451	Miscellaneous Service Revenues	214	2,883				
18	453	Sales of Water and Water Power						
19	454	Rent from Electric Property	28,218	27,398				
20	455	Interdepartmental Rents						
21	456	Other Electric Revenues	(121,633)	(89,230)				
22								
23								
24								
25								
26								
27		Total Other Operating Revenues	(93,201)	(58,949)				
28		Total Electric Operating Revenues	15,752,420	15,566,285				
					Gross Assessable Revenues			
					Line 28 Total From this Schedule			15,752,420
					Add Back Line 13 Amt. (Acct. 449.1, Provision For Rate Refunds)			-
					Less: Credit For Rate Refunds Paid This Reporting Year			
					Less: Sales For Resale			-
					Total Gross Assessable Revenues			15,752,420

UTILITY PLANT - SYSTEM	Beginning Balance	Additions	Retirements (Cr)	Adjustments	Balance at end of Year
Plant in Service (Classified)	3,013,492,263	229,878,456	(304,052,026)	288,209	2,939,606,902
Property Under Capital Leases					-
Plant Purchased or Sold					-
Experimental Plant Unclassified					-
Plant Leased to Others					-
Plant Held for Future Use	872,756	2,113,465		(288,209)	2,698,011
Completed Construction not Classified					-
Construction Work in Progress	96,412,820	285,159,789	(231,045,843)	(1,898,280)	148,628,486
Plant Acquisition Adjustments					-
Sub-Total	3,110,777,838	517,151,710	(535,097,869)	(1,898,280)	3,090,933,399
Other Plant Adjustments					-
Other Utility Plant (Water)	14,973,733	287,925	(15,261,658)		0
Nuclear Fuel (in Process of Refinement, etc.)					-
					-
TOTAL	3,125,751,571	517,439,635	(550,359,527)	(1,898,280)	3,090,933,399
UTILITY PLANT - ARKANSAS	Beginning Balance	Additions	Retirements (Cr)	Adjustments	Balance at end of Year
Plant in Service (Classified)	87,001,589	12,247,980	(9,303,393)		89,946,176
Property Under Capital Leases					-
Plant Purchased or Sold					-
Experimental Plant Unclassified					-
Plant Leased to Others					-
Plant Held for Future Use					-
Completed Construction not Classified					-
Construction Work in Progress	1,634,215	4,586,568	(3,830,212)		2,390,571
Plant Acquisition Adjustments					-
Sub-Total	88,635,804	16,834,548	(13,133,605)	-	92,336,747
Other Plant Adjustments					-
Other Utility Plant (itemize)					-
Nuclear Fuel (in Process of Refinement, etc.)					-
					-
TOTAL	88,635,804	16,834,548	(13,133,605)	-	92,336,747

* In the past we have reported the Utility Plant for Arkansas as actual numbers. We now think it would be much better to report the numbers as allocated numbers per an email from Jeff Hilton with Arkansas Public Service Commission on 4/28/2008.

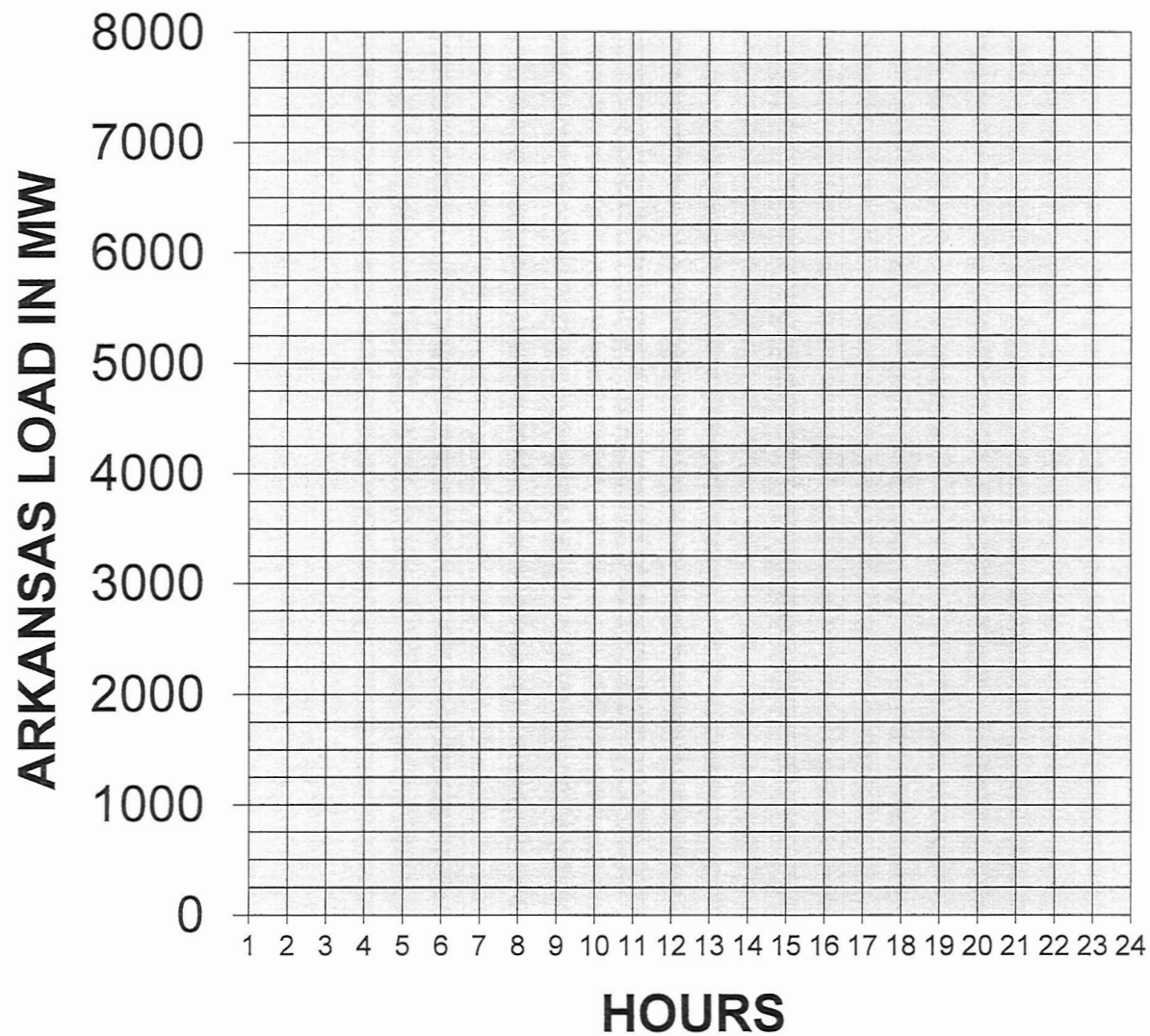
DAILY PEAK LOAD CURVES

1. Show total net 60 minute peak demand of Intrastate Energy.
2. If 60 minute peak is not available, give that which is available, specifying period.
3. Include total net power demand including that generated and purchased.

Arkansas Load				
Hour	Maximum	Minimum	Avg. Max.	Avg. Min.
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

DAILY PEAK LOAD CURVES

◇ Maximum □ Minimum △ Avg. Max. ○ Avg. Min.



Supplement E – 3b
The Empire District Electric Company
Minimum Day of the Year

MV-90XI

LOAD GRAPH

JAN 26, 2021 12:09 PM PAGE: 1

SUMMARY ID: ARKCOM GROUP: PM50 START TIME: 5/10/20 0:01
 CUST NAME: ARKANSAS PUBLIC CLOCK: 60 MINS STOP TIME: 5/10/20 24:00
 PEAKS: A = 16327.8 B = 1306.6

TIME	(1) KW	(2) KVAR	0%	20%	40%	60%	80%	PEAK
05/10/20								
1:00	10672.20	0.00	B	.	.	.	A	:
2:00	10689.84	0.00	B	.	.	.	A	:
3:00	10656.18	0.00	B	.	.	.	A	:
4:00	10761.30	0.00	B	.	.	.	A	:
5:00	10974.90	0.00	B	.	.	.	A	:
6:00	11209.50	0.00	B	.	.	.	A	:
7:00	11571.96	0.00	B	.	.	.	A	:
8:00	12079.62	0.00	B	.	.	.	A	:
9:00	12546.24	0.00	B	.	.	.	A	:
10:00	12890.34	0.00	B	.	.	.	A	:
11:00	13565.10	0.00	B	.	.	.	A	:
12:00	13367.64	0.00	B	.	.	.	A	:
13:00	13775.76	100.80	:	B	.	.	A	:
14:00	14527.50	674.88	:	.	.	B	A	:
15:00	15240.00	1100.16	:	.	.	.	B	A :
16:00	15613.98	1234.56	:	.	.	.	.	BA :
17:00	15636.54	1306.56	:	.	.	.	.	A B
18:00	15774.12	1128.00	:	.	.	.	B	A :
19:00	15946.74	1152.00	:	.	.	.	B	A:
20:00	16327.80	938.88	:	.	.	.	B	A
21:00	16240.56	860.16	:	.	.	.	B	A
22:00	15829.14	588.48	:	.	.	B	.	A :
23:00	15731.52	670.08	:	.	.	B	.	A :
24:00	15168.24	358.08	:	.	B	.	.	A :
<hr/>								
HIGH	16327.80	1306.56						
LOW	10656.18	0.00						
TOTAL	326796.71	10112.64	A = KW B = KVAR S = BOTH					

Interval Status: PO - Power Outage, SI - Short Interval, LI - Long Interval,
 CR - CRC Checksum, RA - RAM Checksum , RO - ROM Checksum,
 DM - Data Missing, CL - Clock Error , LA - Lapse,
 X - Excluded , R - Corrected , Y - Overflow

Supplement E – 3b
The Empire District Electric Company
Minimum Day of the Year

MV-90XI ENGINEERING UNIT PEAKS SUMMARY REPORT JAN 26, 2021 12:56 PM PAGE 1

SUMMARY ID: ARKCOM GROUP: PM50 START TIME: 05/10/20 00:01
 CLOCK: 60 MINS STOP TIME: 05/10/20 24:00

CUSTOMER ID: ARKCOM ADDRESS: SERVICE COMMISSION
 NAME: ARKANSAS PUBLIC LITTLE ROCK, AR
 ACCOUNT #:

6 KW PEAKS (CHAN# 1)
 DATE TIME KW
 * 1 * 05/10/20 20:00 16327.80
 * 2 * 05/10/20 21:00 16240.56
 * 3 * 05/10/20 19:00 15946.74
 * 4 * 05/10/20 22:00 15829.14
 * 5 * 05/10/20 18:00 15774.12
 * 6 * 05/10/20 23:00 15731.52
 TOTAL KWH 326796.71
 LOAD FACTOR 0.834

6 KVAR PEAKS (CHAN# 2)
 DATE TIME KVAR
 * 1 * 05/10/20 17:00 1306.56
 * 2 * 05/10/20 16:00 1234.56
 * 3 * 05/10/20 19:00 1152.00
 * 4 * 05/10/20 18:00 1128.00
 * 5 * 05/10/20 15:00 1100.16
 * 6 * 05/10/20 20:00 938.88
 TOTAL KVARH 10112.64

6 KVAR PEAKS (CHAN# 3)
 DATE TIME KVAR
 * 1 * 05/10/20 06:00 7005.48
 * 2 * 05/10/20 04:00 6951.24
 * 3 * 05/10/20 01:00 6947.76
 * 4 * 05/10/20 03:00 6932.10
 * 5 * 05/10/20 07:00 6913.38
 * 6 * 05/10/20 02:00 6908.70
 TOTAL KVARH 137313.06

* - Interval Status Set # - Channel Status Set @ - Both Statuses Set
 INTERVAL STATUS CODES:

PO-Power Outage , SI-Short(False) , LI-Long(Missing) , CR-CRC Chksum Err
 RA-RAM Chksum Err , RO-ROM Chksum Err , LA-Lapse in Data , CL-Hdwre Clock Err
 BR-Memory Reset , WT-Watchdog T-out , TR-Time Reset , TM-Test Mode
 LC-Load Control

CHANNEL STATUS CODES:

AD-Added Interval , RE-Replaced data , ES-Estimated data , OV-Data Overflow
 HL-High/Low Limit , XC-Excluded Data , PY-Parity Error , TY-Enrgy Typ Chg
 LR-Alarm Error , DI-Harmonic Dstrtn IN-Pt-Pt Lin Interp CK-Check Estimation

Supplement E – 3c
The Empire District Electric Company
Maximum Day of the Year

MV-90XI

LOAD GRAPH

JAN 26, 2021 12:09 PM PAGE: 1

SUMMARY ID: ARKCOM GROUP: PM50 START TIME: 2/14/20 0:01
 CUST NAME: ARKANSAS PUBLIC CLOCK: 60 MINS STOP TIME: 2/14/20 24:00
 PEAKS: A = 22296.6 B = 7.2

TIME	(1) KW	(2) KVAR	0%	20%	40%	60%	80%	PEAK
02/14/20								
1:00	19926.06	0.00	B	.	.	.	.	A :
2:00	19571.82	0.00	B	.	.	.	.	A :
3:00	20065.26	0.00	B	.	.	.	.	A :
4:00	19942.92	0.00	B	.	.	.	.	A :
5:00	20244.54	0.00	B	.	.	.	.	A :
6:00	21001.08	0.00	B	.	.	.	.	A :
7:00	22296.60	0.00	B	.	.	.	.	A :
8:00	21889.86	7.20	:	.	.	.	.	AB :
9:00	21552.00	0.00	B	.	.	.	.	A :
10:00	20744.58	0.00	B	.	.	.	.	A :
11:00	19966.32	0.00	B	.	.	.	.	A :
12:00	18773.64	0.00	B	.	.	.	A	:
13:00	17908.44	0.00	B	.	.	.	A	:
14:00	16913.70	2.70	:	.	B.	.	A	:
15:00	16414.14	0.00	B	.	.	.	A	:
16:00	15873.30	0.00	B	.	.	.	A	:
17:00	14821.38	0.00	B	.	.	A	.	:
18:00	15019.02	0.00	B	.	.	A	.	:
19:00	15969.78	0.00	B	.	.	A	.	:
20:00	16210.74	0.00	B	.	.	A	.	:
21:00	16096.74	0.00	B	.	.	A	.	:
22:00	15727.68	0.00	B	.	.	A	.	:
23:00	15232.08	0.00	B	.	.	A	.	:
24:00	15017.82	0.00	B	.	.	A	.	:
HIGH	22296.60	7.20						
LOW	14821.38	0.00						
TOTAL	437179.49	9.90	A = KW	B = KVAR	S = BOTH			

Interval Status: PO - Power Outage, SI - Short Interval, LI - Long Interval,
 CR - CRC Checksum, RA - RAM Checksum , RO - ROM Checksum,
 DM - Data Missing, CL - Clock Error , LA - Lapse,
 X - Excluded , R - Corrected , Y - Overflow

MV-90XI ENGINEERING UNIT PEAKS SUMMARY REPORT JAN 26, 2021 12:56 PM PAGE 1

CUSTOMER ID: ARKCOM ADDRESS: SERVICE COMMISSION
NAME: ARKANSAS PUBLIC LITTLE ROCK, AR
ACCOUNT #:

6	KW	PEAKS (CHAN# 1)		
		DATE	TIME	KW
* 1 *		02/14/20	07:00	22296.60
* 2 *		02/14/20	08:00	21889.86
* 3 *		02/14/20	09:00	21552.00
* 4 *		02/14/20	06:00	21001.08
* 5 *		02/14/20	10:00	20744.58
* 6 *		02/14/20	05:00	20244.54
TOTAL	KWH			437179.49
LOAD	FACTOR			0.817

6	KVAR	PEAKS (CHAN# 2)		
		DATE	TIME	KVAR
* 1 *		02/14/20	08:00	7.20
* 2 *		02/14/20	14:00	2.70
* 3 *		02/14/20	01:00	0.00
* 4 *		02/14/20	02:00	0.00
* 5 *		02/14/20	03:00	0.00
* 6 *		02/14/20	04:00	0.00
TOTAL KVARH				9.90

6	KVAR	PEAKS (CHAN# 3)		
		DATE	TIME	KVAR
* 1 *		02/14/20	18:00	7219.68
* 2 *		02/14/20	17:00	7171.38
* 3 *		02/14/20	23:00	7000.14
* 4 *		02/14/20	24:00	6994.92
* 5 *		02/14/20	19:00	6906.36
* 6 *		02/14/20	22:00	6890.34
TOTAL	KVARH			131372.28

* - Interval Status Set # - Channel Status Set @ - Both Statuses Set

INTERVAL STATUS CODES:

PO-Power Outage , SI-Short(False) , LI-Long(Missing) , CR-CRC Chksum Err
RA-RAM Chksum Err , RO-ROM Chksum Err , LA-Lapse in Data , CL-Hdwre Clock Err
BR-Memory Reset , WT-Watchdog T-out , TR-Time Reset , TM-Test Mode
LC-Load Control

CHANNEL STATUS CODES:

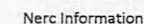
AD-Added Interval , RE-Replaced data , ES-Estimated data , OV-Data Overflow
HL-High/Low Limit , XC-Excluded Data , PY-Parity Error , TY-Energy Typ Chg
LR-Alarm Error , DI-Harmonic Dstrtn IN-Pt-Pt Lin Interp CK-Check Estimation

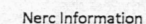
GENERATING UNIT OUTAGES -- SCHEDULED COMPLETE OUTAGE					
Plant Name	Unit No.	Date		Hrs. Lost	Reason for Outage
		Out	On		
See Outage Reports					

GENERATING UNIT OUTAGES -- UNSCHEDULED COMPLETE OUTAGE					
Plant Name	Unit No.	Date		Hrs. Lost	Reason for Outage
		Out	On		
See Outage Reports					

GENERATING UNIT OUTAGES -- SCHEDULED PARTIAL OUTAGE					
Plant Name	Unit No.	Date		Hrs. Lost	Reason for Outage
		Out	On		
See Outage Reports					

GENERATING UNIT OUTAGES -- UNSCHEDULED PARTIAL OUTAGE					
Plant Name	Unit No.	Date		Hrs. Lost	Reason for Outage
		Out	On		
See Outage Reports					

[illegible]

[illegible]

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplification Code
						Date	Time	Date	Time				
ASBURY	1	0.00	0.00	200	po	2/1/2020	0:00	3/1/2020	0:00	696.00	no coal		
RIVERTON	10	4.50	696.00										
	11	0.00	635.90	15	U1	2/27/2020	11:54	3/1/2020	0:00	60.10	Unable to sync to grid due to blown fuse in synchronizing equipment	4810	70
	12 CC	671.00	696.00										
ENERGY CENTER	1												
	2	0.00	0.00	88	U1	02/01/20	00:00	03/01/20	00:00	696.00	Turning gear / starting clutch failure	5206	34
	3	19.22	694.87	30	D1	02/01/20	00:00	02/29/20	19:30	691.50	3B suspected bearing failure (trip on loss of lube oil)	5081	6
				60	PO	02/29/20	19:30	02/29/20	20:38	1.13	EC3A OOS to recouple 3B engine	5205	59
				30	D1	02/29/20	20:38	02/29/20	21:45	1.12	3B suspected bearing failure (trip on loss of lube oil)	5081	6
30				D1	02/29/20	21:54	20/29/2020	22:19	0.42	3B suspected bearing failure (trip on loss of lube oil)	5081	6	
4	118.18	690.48	29 58	D1 MO	02/14/20	00:01	02/14/20	05:09	5.13	4A Gas unavailable OOS Fuel Oil for Operation	5049	46	
					02/14/20	05:09	02/14/20	10:40	5.52	OOS Fuel Oil Leak	5041	54	



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
MARCH

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplification Code
						Date	Time	Date	Time				
ASBURY	1	0.00	0.00	200	RU	3/1/20	0:00	4/1/20	0:00	743.00	Permanently Retired/de-designated	9990	
	10	25.13	656.33	13 13	PO MO	3/2/20 3/16/20	11:00 20:55	3/4/20 3/18/20	16:00 6:35	53.00 33.67	Opened aux. power breaker to troubleshoot Unit 11 safely Welded the leak on the horizontal joint north side	3621 5098	53 54
RIVERTON	11	26.18	678.93	15	U1	3/1/20	0:00	3/3/20	16:04	64.07	Unable to sync to grid due to blown fuse in synchronizing equipment	4810	70
	12 CC	729.15	741.53	247	U1	3/26/20	7:18	3/26/20	8:46	1.47	Low pressure on CT Main Hydraulic pump discharge	5121	66
ENERGY CENTER	1	59.15	743.00										
	2	20.78	408.00	88	U1	03/01/20	00:00	03/15/20	00:00	335.00	Turning Gear / Starting Package Clutch Failure	5206	34
	3	114.68	710.33	60	U1	03/02/20	08:15	03/02/20	09:40	1.42	Replace Hydraulic Starter Hose	5130	54
				30	D1	03/06/20	06:38	03/11/20	07:00	120.37	3B OOS Oil Leak	5110	54
				60	U1	03/11/20	07:00	03/11/20	16:30	9.50	OOS R&R Oil Pump on 3B	5110	54
				60	U1	03/18/20	16:15	03/19/20	14:00	21.75	OOS Oil Leak 3B	5110	54
	4	84.27	294.00	58	PO	03/13/20	07:00	04/01/20	00:00	449.00	Generator Major Inspection	4500	31



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
MARCH

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplificaton Code			
						Date	Time	Date	Time							
STATELINE	1	97.18	742.00	105	RS	3/1/2020	0:00	3/6/2020	23:32	143.53	Reserve Shutdown	5240	53			
				105	RS	3/9/2020	6:12	3/11/2020	14:00	55.80	Reserve Shutdown					
				105	PO	3/11/2020	14:00	3/11/2020	15:00	1.00	Inspect Fire Protection System					
			105	RS	3/11/2020	15:00	3/12/2020	4:27	13.45	Reserve Shutdown						
			105	RS	3/13/2020	0:19	3/16/2020	5:26	77.12	Reserve Shutdown						
			105	RS	3/16/2020	16:12	3/28/2020	10:22	282.17	Reserve Shutdown						
	SLCC	419.42	536.83	105	RS	3/28/2020	23:15	4/1/2020	0:00	72.75	Reserve Shutdown	5272	53			
				555	PO	3/7/2020	0:25	3/15/2020	15:35	206.17	Borescope Inspection					
				277.5	RS	3/15/20	15:35	3/18/20	23:12	79.62	Reserve Shutdown					
				277.5	PD	3/15/20	15:35	3/21/20	12:00	140.42	2-2 Isophase Upgrade					
				55	D1	3/22/20	7:43	3/23/20	15:41	31.97	2-2 HP Feedwater stop valve was half open					
				277.5	D1	3/23/20	15:41	3/24/20	9:00	17.32	2-2 HP Feedwater stop valve was half open					
OZARK BEACH	5	10.70	743.00													
				6	10.58	735.50	4	U1	3/19/20	7:30	3/19/20	15:00	7.50	Bad thermo-couple in thrust bearing	7007	
	7	10.55	732.93	4	U1	3/2/20	6:31	3/2/20	8:20	1.82	Issue with AVR Watchdog	4700				
						U1	3/9/20	4:30	3/9/20	10:00	5.50			Faulty relay base. Low generator oil pressure		
						U1	3/11/20	9:15	3/11/20	12:00	2.75			AVR loose wire		
	8	642.23	743.00													



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
APRIL

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION	REASON FOR OUTAGE	Cause Code	Amplificaton Code
						Date	Time	Date	Time				
ASBURY	1	0.00	0.00	200	RU	4/1/20	0:00	5/1/20	0:00	720.00	Permanently Retired/de-designated	9990	
RIVERTON	10	0.00	715.43	13	PO	4/26/2020	6:36	4/26/2020	11:10	4.57	Remove gas header Relief Valve	9320	
	11	0.00	715.43	15	PO	4/26/2020	6:36	4/26/2020	11:10	4.57	Remove gas header Relief Valve	9320	
	12 CC	332.95	345.45	247 247	PO PO	4/15/2020 4/30/2020	1:03 16:02	4/30/2020 5/1/2020	7:38 0:00	366.58 7.97	CT Minor CT Minor continuation	5272 5272	53 53
ENERGY CENTER	1	38.32	606.75	82	U1	04/26/20	06:45	05/01/20	00:00	113.25	Main Oil Pump	5111	6
	2	44.07	720.00										
	3	69.55	710.50	60	PO	04/07/20	07:00	04/07/20	16:30	9.50	Borescope	5272	53
	4	0.00	0.00	58	PO	04/01/20	00:00	05/01/20	00:00	720.00	Generator Major Inspection (continuation)	4500	31



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
APRIL

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION	REASON FOR OUTAGE	Cause Code	Amplificaton Code
						Date	Time	Date	Time				
STATELINE	1	57.87	720.00	94 94 94 94 94	RS RS RS RS RS	4/1/2020 4/1/2020 4/6/2020 4/7/2020 4/29/2020	0:00 23:12 10:14 6:12 0:12	4/1/2020 4/6/2020 4/6/2020 4/27/2020 5/1/2020	13:23 4:32 12:37 23:26 0:00	13.38 101.33 2.38 497.23 47.80	Reserve Shutdown Reserve Shutdown Reserve Shutdown Reserve Shutdown Reserve Shutdown		
	SLCC	606.65	720.00	243.5 487 487	D1 RS RS RS	4/5/2020 4/5/2020 4/11/2020 4/16/2020	12:13 12:13 10:23 6:15	4/7/2020 4/6/2020 4/11/2020 4/18/2020	1:58 22:37 22:37 23:37	37.75 34.40 12.23 65.37	2-2 drum door leak Reserve Shutdown Reserve Shutdown Reserve Shutdown	0830	54
OZARK BEACH	5	0.25	14.78	4	U1	4/1/2020	14.47	5/1/2020	0:00	705.22	Tail water too high to generate	9000	
	6	0.25	14.78	4	U1	4/1/2020	14.47	5/1/2020	0:00	705.22	Tail water too high to generate	9000	
	7	0.25	14.78	4	U1	4/1/2020	14.47	5/1/2020	0:00	705.22	Tail water too high to generate	9000	
	8	14.78	14.78	4	U1	4/1/2020	14.47	5/1/2020	0:00	705.22	Tail water too high to generate	9000	



THE EMPIRE DISTRICT ELECTRIC COMPANY

2020 OUTAGE REPORT

MAY

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplification Code
						Date	Time	Date	Time				
ASBURY	1	0.00	0.00	200	RU	5/1/20	0:00	6/1/20	0:00	744.00	Permanently Retired/de-designated	9990	
RIVERTON	10	0.00	740.50	13	PO	5/27/2020	8:30	5/27/2020	12:00	3.50	Black Start Testing/Training	9998	
	11	0.00	740.50	15	PO	5/27/2020	8:30	5/27/2020	12:00	3.50	Placed in outage due to black start testing/training on unit 10	9998	
	12 CC	304.52	539.73	247	PO	5/1/2020	0:00	5/2/2020	2:36	26.60	Continuation of CT minor Fiber issue, loss of communication in the DCS HP Feed Water valve actuator locked up Leak on the HP Turbine drain valve piping	5272	53
					U1	5/4/2020	14:28	5/4/2020	17:12	2.73		3981	T1
					MO	5/15/2020	0:31	5/20/2020	1:29	120.97		680	
					U1	5/26/2020	9:47	5/28/2020	15:45	53.97		6112	T2
ENERGY CENTER	1	0.00	0.00	76	U1	05/01/20	00:00	06/01/20	00:00	744.00	Main Oil Pump (continuation)	5111	6
	2	6.85	744.00										
	3	52.93	738.33	39	U1	05/24/20	15:20	05/24/20	21:00	5.67	Fire System Trip (Oil Line Leak)	5110	T1
	4	0.00	0.00	42	PO	05/01/20	00:00	06/01/20	00:00	744.00	Generator Major Inspection (continuation)	4500	31



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
MAY

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplification Code
						Date	Time	Date	Time				
STATELINE	1	8.50	467.12	94 94 94	RS PO RS	5/1/2020 5/7/2020 5/18/2020	0:00 0:00 12:53	5/7/2020 5/18/2020 5/31/2020	0:00 12:53 15:30	144.00 276.88 314.62	Reserve Shutdown(continuation) Installed Single Layer Insulation in Tear Drop Reserve Shutdown	5230	61
	SLCC	554.10	744.00	487 487 487 487	RS RS RS RS	5/5/2020 5/9/2020 5/18/2020 5/30/2020	6:22 0:42 20:54 0:48	5/5/2020 5/9/2020 5/23/2020 5/31/2020	6:49 23:38 22:36 21:37	0.45 22.93 121.70 44.82	Reserve Shutdown Reserve Shutdown Reserve Shutdown Reserve Shutdown		
OZARK BEACH	5	0.00	0.00	4	U1	5/1/2020	0:00	6/1/2020	0:00	744.00	Tail waters too high to generate (continuation)	9000	
	6	0.00	0.00	4	U1	5/1/2020	0:00	6/1/2020	0:00	744.00	Tail waters too high to generate (continuation)	9000	
	7	0.00	0.00	4	U1	5/1/2020	0:00	6/1/2020	0:00	744.00	Tail waters too high to generate (continuation)	9000	
	8	0.00	0.00	4	U1	5/1/2020	0:00	6/1/2020	0:00	744.00	Tail waters too high to generate (continuation)	9000	

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**THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
JUNE**

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplificaton Code
						Date	Time	Date	Time				
STATELINE	1	92.02	720.00	94	RS	6/1/2020	18:50	6/2/2020	12:22	17.53	Reserve Shutdown		
				94	RS	6/2/2020	19:12	6/3/2020	13:06	17.90	Reserve Shutdown		
				94	RS	6/3/2020	18:42	6/4/2020	12:23	17.68	Reserve Shutdown		
				94	RS	6/4/2020	17:58	6/5/2020	12:50	18.87	Reserve Shutdown		
				94	RS	6/5/2020	19:57	6/6/2020	11:22	15.42	Reserve Shutdown		
				94	RS	6/6/2020	20:12	6/11/2020	11:21	111.15	Reserve Shutdown		
				94	RS	6/11/2020	23:11	6/13/2020	12:30	37.32	Reserve Shutdown		
				94	RS	6/13/2020	20:14	6/16/2020	11:23	63.15	Reserve Shutdown		
				94	RS	6/16/2020	18:12	6/25/2020	10:22	208.17	Reserve Shutdown		
				94	RS	6/25/2020	23:12	7/1/2020	0:00	120.80	Reserve Shutdown		
	SLCC	718.33	720.00	487	RS	6/7/2020	0:32	6/7/2020	2:12	1.67	Reserve Shutdown		
OZARK BEACH	5	0.00	0.00	4	U1	6/1/2020	0:00	7/1/2020	0:00	720.00	Tail waters too high to generate(continuation)	9000	
	6	0.00	0.00	4	U1	6/1/2020	0:00	7/1/2020	0:00	720.00	Tail waters too high to generate(continuation)	9000	
	7	0.00	0.00	4	U1	6/1/2020	0:00	7/1/2020	0:00	720.00	Tail waters too high to generate(continuation)	9000	
	8	0.00	0.00	4	U1	6/1/2020	0:00	7/1/2020	0:00	720.00	Tail waters too high to generate(continuation)	9000	



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
JULY

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplificaton Code
						Date	Time	Date	Time				
ASBURY	1	0.00	0.00	200	RU	7/1/20	0:00	8/1/20	0:00	744.00	Permanently Retired/de-designated(continuation)	9990	
	10	0.00	744.00										
RIVERTON	11	0.00	738.33	15	MO	7/26/2020	8:15	7/26/2020	13:55	5.67	Clutch air compressor brush inspection	5130	53
	12 CC	732.30	744.00										
ENERGY CENTER	1	204.77	690.47	76	U1	7/6/2020	9:08	7/8/2020	14:40	53.53	Failed PT	4730	6
	2	254.85	744.00										
	3	311.92	742.25	39	U1	07/20/20	10:00	07/20/20	11:45	1.75	Generator Breaker Problem	4810	6
	4	0.00	0.00	42	PO	07/01/20	00:00	08/01/20	00:00	744.00	Generator Major Inspection(continuation)	4500	31



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
JULY

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplificaton Code
						Date	Time	Date	Time				
STATELINE	1	63.57	744.00	94	RS	7/1/2020	0:00	7/1/2020	10:22	10.37	Reserve Shutdown		
				94	RS	7/1/2020	20:39	7/10/2020	11:22	206.72	Reserve Shutdown		
				94	RS	7/10/2020	18:23	7/13/2020	10:31	64.13	Reserve Shutdown		
				94	RS	7/13/2020	19:42	7/15/2020	12:37	40.92	Reserve Shutdown		
				94	RS	7/15/2020	19:30	7/16/2020	15:40	20.17	Reserve Shutdown		
				94	RS	7/16/2020	20:57	7/18/2020	14:20	41.38	Reserve Shutdown		
				94	RS	7/18/2020	22:12	7/20/2020	12:03	37.85	Reserve Shutdown		
				94	RS	7/20/2020	20:12	7/21/2020	6:21	10.15	Reserve Shutdown		
				94	RS	7/21/2020	15:15	8/1/2020	0:00	248.75	Reserve Shutdown		
	SLCC	744.00	744.00										
OZARK BEACH	5	0.00	0.00	4	U1	7/1/2020	0:00	8/1/2020	0:00	744.00	Tail waters too high to generate(continuation)	9000	
	6	0.00	0.00	4	U1	7/1/2020	0:00	8/1/2020	0:00	744.00	Tail waters too high to generate(continuation)	9000	
	7	0.00	0.00	4	U1	7/1/2020	0:00	8/1/2020	0:00	744.00	Tail waters too high to generate(continuation)	9000	
	8	0.00	0.00	4	U1	7/1/2020	0:00	8/1/2020	0:00	744.00	Tail waters too high to generate(continuation)	9000	



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
AUGUST

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplificaton Code
						Date	Time	Date	Time				
ASBURY	1	0.00	0.00	200	RU	8/1/20	0:00	9/1/20	0:00	744.00	Permanently Retired/de-designated	9990	
RIVERTON	10	10.93	744										
	11	9.67	744										
	12 CC	453.98	629.88	247 247	U1 U1	8/6/2020 8/24/2020	6:25 8:49	8/10/2020 8/24/2020	23:01 10:20	112.60 1.52	Preheater 3 vent line leaking at header Exhaust TC failure caused unload and shutdown of turbine	780 5109	54 T1
ENERGY CENTER	1	240.47	744.00										
	2	209.42	744.00										
	3	325.92	744.00										
	4	0.00	0.00	42	PO	8/1/2020	0:00	9/1/2020	0:00	744.00	Generator Major Inspection(continuation)	4500	31



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
AUGUST

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplificaton Code
						Date	Time	Date	Time				
STATELINE	1	175.78	744.00	94	RS	8/1/2020	0:00	8/3/2020	11:34	59.57	Reserve Shutdown		
				94	RS	8/3/2020	18:13	8/6/2020	12:07	65.90	Reserve Shutdown		
				94	RS	8/6/2020	19:12	8/7/2020	11:20	16.13	Reserve Shutdown		
				94	RS	8/7/2020	18:16	8/7/2020	19:49	1.55	Reserve Shutdown		
				94	RS	8/12/2020	1:12	8/13/2020	9:52	32.67	Reserve Shutdown		
				94	RS	8/13/2020	21:02	8/14/2020	11:24	14.37	Reserve Shutdown		
				94	RS	8/14/2020	19:45	8/15/2020	11:07	15.37	Reserve Shutdown		
				95	RS	8/15/2020	18:15	8/17/2020	13:25	43.17	Reserve Shutdown		
				96	RS	8/17/2020	18:58	8/18/2020	12:07	17.15	Reserve Shutdown		
				97	RS	8/18/2020	19:42	8/19/2020	15:11	19.48	Reserve Shutdown		
				98	RS	8/19/2020	20:27	8/24/2020	9:33	109.10	Reserve Shutdown		
				99	RS	8/24/2020	18:14	9/1/2020	0:00	173.77	Reserve Shutdown		
	SLCC	744.00	744.00										
OZARK BEACH	5	0.00	0.00	4	U1	8/1/2020	0:00	9/1/2020	0:00	744.00	Tail waters too high to generate(continuation)	9000	
	6	92.36	111.17	4	U1	8/1/2020	0:00	8/27/2020	8:50	632.83	Tail waters too high to generate(continuation)	9000	
	7	122.98	159.72	4	U1	8/1/2020	0:00	8/25/2020	8:17	584.28	Tail waters too high to generate(continuation)	9000	
	8	70.13	182.13	4	U1	8/1/2020	0:00	8/24/2020	9:52	561.87	Tail waters too high to generate(continuation)	9000	



THE EMPIRE DISTRICT ELECTRIC COMPANY
2020 OUTAGE REPORT
SEPTEMBER

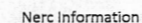
Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplificaton Code
						Date	Time	Date	Time				
ASBURY	1	0.00	0.00	200	RU	9/1/20	0:00	10/1/20	0:00	720.00	Permanently Retired/de-designated	9990	
RIVERTON	10	7.62	629.38	13	PO PO	9/14/2020 9/25/2020	0:00 6:00	9/17/2020 9/25/2020	7:18 17:19	79.30 11.32	Rebuilding the gas valves to site Full Black start test	5041 9998	59
	11	5.57	629.38	15	PO	9/14/2020 9/25/2020	0:00 6:00	9/17/2020 9/25/2020	7:18 17:19	79.30 11.32	Rebuilding the gas valves to site Full Black start test	5041 9998	59
	12 CC	213.00	300.05	247	U1 PO	9/4/2020 9/11/2020	9:20 21:17	9/4/2020 9/29/2020	10:15 8:19	0.92 419.03	Exhaust thermocouple failure Replaced main generator bushings	5109 4800	T1 59
ENERGY CENTER	1	68.23	717.00	76	PO	09/10/20	10:00	09/10/20	13:00	3.00	Gas Flow Meter Calibration	8700	59
	2	43.90	523.25	75 75 75	U1 PO PO	09/04/20 9/11/2020 9/21/2020	11:27 7:28 0:00	09/04/20 9/11/2020 9/29/2020	14:20 9:20 0:00	2.88 1.87 192.00	High Pressure Bleed Failure Gas Flow Meter Calibration Exhaust Stack / Combuster Inspection	5250 8700 5269	54 59 53
	3	155.40	686.50	19 19 39	D1 D1 U1	9/2/2020 9/3/2020 9/29/2020	19:05 14:00 14:30	9/3/2020 9/3/2020 10/1/2020	9:16 15:00 0:00	14.18 1.00 33.50	3A Cold Can Flameout Oil Filter High Differential Exciter	5109 5114 4609	75 FO 83
	4	0.55	7.52	42 21	PO D1	9/1/2020 9/30/2020	0:00 16:29	9/30/2020 10/1/2020	16:29 0:00	712.48 7.52	Generator Major Inspection(continuation) 4B OOS Generator Major Inspection	4500 4500	31 31

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THE EMPIRE DISTRICT ELECTRIC COMPANY													Nerc Information	
Liberty™				2020 OUTAGE REPORT										
				OCTOBER										
PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplificaton Code	
						Date	Time	Date	Time					
ASBURY	1	0.00	0.00											
				200	RU	10/1/20	0:00	11/1/20	0:00	744.00	Permanently Retired/de-designated	9990		
RIVERTON	10	65.70	744.00											
	11	14.10	265.08	15	U1	10/12/2020	1:05	11/1/2020	0:00	478.92	Air tube cracked, manufacturing a replacement	5130		
	12 CC	737.50	744.00											
ENERGY CENTER	1	508.35	744.00											
	2	486.42	728.00	75	U1	10/18/2020	22:59	10/19/2020	13:16	14.28	Low Gas Pressure	5048	81	
				75	U1	10/26/2020	5:42	10/26/2020	7:25	1.72	Unit Controls tripped Breaker	4720	82	
	3													
				39	U1	10/1/2020	0:00	10/5/2020	10:48	106.80	Exciter	4609	83	
				19.5	PD	10/5/2020	10:48	10/8/2020	7:00	68.20	3B OOS	5262	59	
		356.96	588.48	39	U1	10/8/2020	7:00	10/8/2020	16:45	9.75	Exciter Balance	4609	31	
				19.5	PD	10/8/2020	16:45	10/14/2020	0:04	127.32	3B OOS	5262	59	
				39	U1	10/14/2020	0:04	10/15/2020	15:02	38.97	Nozzle Replacement and recouple 3B	5042	84	
	4			21	D1	10/01/20	00:00	10/03/20	17:57	65.95	4B Generator Major Inspection	4500	31	
				21	D1	10/04/20	04:16	10/04/20	05:20	1.07	4B OOS Lube Oil Leak	5110	54	
				42	U1	10/04/20	05:24	10/04/20	05:35	0.18	OOS Lube Oil Leak	5110	T1	
				42	U1	10/11/20	04:02	10/11/20	04:19	0.28	OOS - Cold Can Trip	5475	T1	
				21	D1	10/11/20	11:28	10/11/20	13:40	2.20	4A OOS Collector Box Seal	5109	55	
				42	U1	10/11/20	13:40	10/11/20	15:06	1.43	OOS - Change Collector Box Seals	5109	T1	
				21	D1	10/11/20	15:06	10/11/20	15:14	0.13	4A OOS	5109	55	
				42	U1	10/11/20	15:14	10/11/20	15:23	0.15	OOS EGT High Temp Spread	5475	T1	
		411.20	740.45	21	D1	10/11/20	15:23	10/12/20	16:40	25.28	4A OOS	5109	55	
				42	U1	10/12/20	19:03	10/12/20	19:25	0.37	OOS Speed Probe Failure	5250	T1	
				42	U1	10/13/20	06:54	10/13/20	07:10	0.27	OOS - High Temp Spread	5475	T1	
				42	U1	10/13/20	07:21	10/13/20	07:34	0.22	OOS - Flame Out	5075	T1	
				42	U1	10/14/20	06:05	10/14/20	06:16	0.18	OOS - Cold Can Trip	5475	T1	
				42	U1	10/19/20	22:33	10/19/20	22:43	0.17	OOS - Cold Can Trip	5475	T1	
				42	U1	10/21/20	11:39	10/21/20	11:48	0.15	OOS - Cold Can Trip	5475	T1	
			42	U1	10/29/20	10:32	10/29/20	10:41	0.15	OOS - Power lost to Injection Water Pumps	5054	T1		

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THE EMPIRE DISTRICT ELECTRIC COMPANY

2020 OUTAGE REPORT

DECEMBER

Nerc Information

PLANT	UNIT	HOURS OF OPERATION	HOURS AVAILABLE	MW OUTAGED	OUTAGE CODE	START OF OUTAGE		END OF OUTAGE		OUTAGE DURATION HOURS	REASON FOR OUTAGE	Cause Code	Amplificaton Code
						Date	Time	Date	Time				
STATELINE	1	87.93	744.00	105	RS	12/1/2020	0:00	12/5/2020	4:22	100.37	Reserve Shutdown		
				105	RS	12/5/2020	10:12	12/8/2020	21:04	82.87	Reserve Shutdown		
				105	RS	12/9/2020	6:12	12/10/2020	21:25	39.22	Reserve Shutdown		
				105	RS	12/11/2020	6:12	12/12/2020	12:01	29.82	Reserve Shutdown		
				105	RS	12/12/2020	22:42	12/18/2020	8:29	129.78	Reserve Shutdown		
				105	RS	12/18/2020	18:12	12/19/2020	23:22	29.17	Reserve Shutdown		
				105	RS	12/21/2020	0:12	12/26/2020	18:24	138.20	Reserve Shutdown		
				105	RS	12/27/2020	7:12	12/27/2020	12:03	4.85	Reserve Shutdown		
				105	RS	12/27/2020	18:12	12/31/2020	0:00	101.80	Reserve Shutdown		
	SLCC	651.37	744.00	555	RS	12/4/2020	13:25	12/6/2020	17:36	52.18	Reserve Shutdown		
				555	RS	12/10/2020	12:41	12/11/2020	9:07	20.43	Reserve Shutdown		
				555	RS	12/26/2020	13:36	12/27/2020	9:37	20.02	Reserve Shutdown		
OZARK BEACH	5	715.08	744.00										
	6	616.93	742.98	4	U1	12/9/2020	7:56	12/9/2020	8:57	1.02	Unit tripped on startup. Suspect log in linkage.	7141	
	7	375.35	718.42	4	U1	12/29/2020	8:00	12/30/2020	9:35	25.58	Broken gate links	7142	
	8	321.03	743.92	4	U1	12/15/2020	11:47	12/15/2020	11:52	0.08	Found nut on top of unit. Identified as being from the exciter. Out of svc. To install nut.	4609	

February 13, 2020
11:46 AM

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Event Details Report
January 2020 Through January 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
2020								
IAT1	1	D1	01/03/2020 03:25	1	29.27	51.42	15.05	10,540.42
	CAUSE CODE 341085 - FEEDWATER PUMP							
IAT1	2	D1	01/04/2020 14:01	1	39.98	34.60	13.83	9,688.00
	CAUSE CODE 341085 - FEEDWATER PUMP							
IAT1	3	RS	01/06/2020 08:00	1	100.00	41.98	41.98	29,405.13
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	5	MO	01/08/2020 16:00	1	100.00	56.00	56.00	39,222.40
	CAUSE CODE 440153 - TURBINE INSPECTION							
IAT1	6	MO	01/28/2020 07:25	1	100.00	471.42	471.42	330,180.23
	CAUSE CODE 341001 - FEEDWATER PUMP							
IAT1	7	ME	01/31/2020 24:00	1	100.00	88.58	88.58	62,043.77
	CAUSE CODE 108054 - ECONOMIZER LEAKS							

NOTE: The Equivalent Hours and MWHrs shown on this listing are for the indicated period range only.

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Event Details Report
February 2020 Through February 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
2020								
IAT1	7	ME	02/01/2020 13:45	1	100.00	13.75	13.75	9,630.50
	CAUSE CODE 108054 - ECONOMIZER LEAKS							
IAT1	8	RS	02/03/2020 09:13	1	100.00	43.47	43.47	30,444.05
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	9	U1	02/08/2020 01:57	1	100.00	69.48	69.48	48,666.13
	CAUSE CODE 1140T1 - FIRST SUPERHEATER SLAGGING/FOULING							
IAT1	10	RS	02/08/2020 22:22	1	100.00	20.42	20.42	14,299.83
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	11	D1	02/10/2020 15:16	1	42.39	2.27	0.96	673.20
	CAUSE CODE 025083 - PULVERIZER FEEDERS							
IAT1	12	D1	02/11/2020 12:15	1	3.57	16.32	0.58	407.92
	CAUSE CODE 179909 - OTHER BOILER CONTROL AND INSTRUMENTATION PROBLEMS							
IAT1	13	D1	02/12/2020 07:45	1	2.84	0.92	0.03	18.33
	CAUSE CODE 033566 - PULVERIZER LUBE OIL SYSTEM							
IAT1	14	D1	02/13/2020 13:00	1	2.86	5.00	0.14	100.00
	CAUSE CODE 033566 - PULVERIZER LUBE OIL SYSTEM							
IAT1	15	NC	02/14/2020 23:43	1	4.28	16.37	0.70	491.00
	CAUSE CODE 870079 - CEMS CERTIFICATION AND RECERTIFICATION							
IAT1	16	D1	02/16/2020 09:31	1	2.86	13.33	0.38	266.67
	CAUSE CODE 033566 - PULVERIZER LUBE OIL SYSTEM							
IAT1	17	D1	02/17/2020 06:33	1	2.85	19.23	0.55	384.67
	CAUSE CODE 033566 - PULVERIZER LUBE OIL SYSTEM							

NOTE: The Equivalent Hours and MWHrs shown on this listing are for the indicated period range only.

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Event Details Report
February 2020 Through February 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
IAT1	18	D1	02/17/2020 10:48	1	21.41	4.25	0.91	637.50
	CAUSE CODE 031234 - PULVERIZER MILL CLASSIFIERS							
IAT1	19	D1	02/18/2020 07:33	1	2.86	20.75	0.59	415.00
	CAUSE CODE 033566 - PULVERIZER LUBE OIL SYSTEM							
IAT1	20	U2	02/21/2020 18:54	1	100.00	28.90	28.90	20,241.56
	CAUSE CODE 362006 - MAIN TRANSFORMER							
IAT1	21	RS	02/29/2020 24:00	1	100.00	197.10	197.10	138,048.84
	CAUSE CODE 0000 - RESERVE SHUTDOWN							

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Event Details Report
March 2020 Through March 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
2020								
IAT1	21	RS	03/31/2020 24:00	1	100.00	743.00	743.00	520,397.7
CAUSE CODE 0000 - RESERVE SHUTDOWN								

Event Details Report
April 2020 Through April 2020

Event Details Report
May 2020 Through May 2020

Event Details Report
June 2020 Through June 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT1	21	RS	08/03/2020 04:08	1	100.00	52.13	52.13	36,514.19
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	25	U1	08/03/2020 10:32	1	100.00	3.08	3.08	2,159.57
	CAUSE CODE 3410T1 - FEEDWATER PUMP							
IAT1	22	D1	08/04/2020 12:13	1	17.13	12.02	2.06	1,442.00
	CAUSE CODE 145509 - INDUCED DRAFT FANS							
IAT1	23	D1	08/04/2020 15:28	1	17.12	2.52	0.43	302.00
	CAUSE CODE 145509 - INDUCED DRAFT FANS							
IAT1	24	D1	08/05/2020 10:36	1	5.71	15.33	0.88	613.33
	CAUSE CODE 145509 - INDUCED DRAFT FANS							
IAT1	26	NC	08/05/2020 18:27	1	23.55	7.85	1.85	1,295.25
	CAUSE CODE 999979 - TOTAL UNIT PERFORMANCE TESTING							
IAT1	27	RS	08/19/2020 06:07	1	100.00	290.25	290.25	203,291.10
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	28	D1	08/19/2020 19:40	1	4.30	1.42	0.06	42.50
	CAUSE CODE 034059 - OTHER PULVERIZER PROBLEMS							
IAT1	29	RS	08/26/2020 05:05	1	100.00	55.68	55.68	39,000.61
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	30	U1	08/30/2020 03:45	1	100.00	96.48	96.48	67,576.93
	CAUSE CODE 4260T1 - TURBINE MAIN STOP VALVES							
IAT1	31	RS	08/30/2020 24:00	1	100.00	20.25	20.25	14,183.10
	CAUSE CODE 0000 - RESERVE SHUTDOWN							

Event Details Report
July 2020 Through July 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
2020								
IAT1	31	RS	07/01/2020 02:55	1	100.00	2.92	2.92	2,042.83
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	32	NC	07/07/2020 17:22	1	0.00	10.37	0.00	0.00
	CAUSE CODE 005070 - OTHER STACK OR EXHAUST EMISSIONS TESTING - FOSSIL							
IAT1	33	NC	07/08/2020 07:15	1	0.00	3.00	0.00	0.00
	CAUSE CODE 005070 - OTHER STACK OR EXHAUST EMISSIONS TESTING - FOSSIL							
IAT1	41	D1	07/10/2020 04:23	1	37.40	2.43	0.91	637.53
	CAUSE CODE 854870 - DRY SCRUBBER TESTING							
IAT1	34	U1	07/15/2020 18:19	1	100.00	97.60	97.60	88,359.04
	CAUSE CODE 4263T1 - TURBINE REHEAT STOP VALVES							
IAT1	35	RS	07/17/2020 04:42	1	100.00	34.38	34.38	24,082.09
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	36	D1	07/19/2020 23:17	1	27.12	14.82	4.02	2,815.17
	CAUSE CODE 025057 - SEAL AIR SYSTEM (AIR TO PULVERIZERS)							
IAT1	37	D1	07/20/2020 15:45	1	8.57	16.47	1.41	998.00
	CAUSE CODE 032006 - FOREIGN OBJECT IN PULVERIZER MILL							
IAT1	39	D1	07/20/2020 20:54	1	5.71	5.15	0.29	296.00
	CAUSE CODE 0250FD - LOW BTU COAL							
IAT1	40	D1	07/20/2020 23:59	1	3.57	3.09	0.11	77.08
	CAUSE CODE 0250FD - LOW BTU COAL							
IAT1	38	RS	07/28/2020 03:42	1	100.00	49.82	49.82	34,891.59
	CAUSE CODE 0000 - RESERVE SHUTDOWN							

Event Details Report
July 2020 Through July 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
IAT1	42	D1	07/27/2020 07:44	1	7.13	1.68	0.12	84.17
	CAUSE CODE 142041 - OTHER FORCED DRAFT FAN PROBLEMS							
IAT1	43	D1	07/27/2020 12:21	1	14.27	4.62	0.66	461.07
	CAUSE CODE 142041 - OTHER FORCED DRAFT FAN PROBLEMS							
IAT1	44	D1	07/27/2020 23:49	1	12.14	11.47	1.39	674.67
	CAUSE CODE 142041 - OTHER FORCED DRAFT FAN PROBLEMS							
IAT1	45	D1	07/28/2020 03:54	1	48.54	4.08	1.98	1,388.33
	CAUSE CODE 142041 - OTHER FORCED DRAFT FAN PROBLEMS							
IAT1	46	D1	07/31/2020 24:00	1	26.84	19.88	5.34	3,738.07
	CAUSE CODE 0271W0 - WET COAL (NOT OMC)							

Event Details Report
August 2020 Through August 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
2020								
IAT1	46	D1	08/02/2020 04:54	1	26.84	28.90	7.76	5,433.20
CAUSE CODE 9271W0 - WET COAL (NOT OMC)								
IAT1	47	D1	08/13/2020 08:46	1	5.75	1.18	0.07	47.33
CAUSE CODE 031041 - PULVERIZER MILLS								
IAT1	48	D1	08/31/2020 09:03	1	41.39	1.82	0.75	526.83
CAUSE CODE 360082 - 4000-7000-VOLT TRANSFORMERS								

October 07, 2020
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**Everyday GADS
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Event Details Report
September 2020 Through September 2021

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
2020								
IAT1	49	RS	08/07/2020 12:05	1	100.00	10.35	10.35	7,249.14
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	50	U1	08/18/2020 11:04	1	100.00	214.98	214.98	150,574.33
	CAUSE CODE 429954 - TURBINE OTHER HYDRAULIC SYSTEM PROBLEMS							
IAT1	51	D1	09/17/2020 11:47	1	42.89	6.52	2.80	1,657.61
	CAUSE CODE 034052 - OTHER PULVERIZER PROBLEMS							
IAT1	52	D1	09/17/2020 13:18	1	14.30	1.52	0.22	152.27
	CAUSE CODE 034052 - OTHER PULVERIZER PROBLEMS							
IAT1	53	D1	09/17/2020 13:40	1	42.78	0.37	0.16	110.15
	CAUSE CODE 034012 - OTHER PULVERIZER PROBLEMS							
IAT1	54	U1	09/21/2020 05:57	1	100.00	88.28	88.28	61,833.65
	CAUSE CODE 1040T1 - FIRST SUPERHEATER LEAKS							
IAT1	55	RS	09/23/2020 05:41	1	100.00	47.73	47.73	33,432.43
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	56	D1	09/24/2020 15:50	1	18.05	3.78	0.69	478.21
	CAUSE CODE 030064 - PULVERIZER MOTORS AND DRIVES							
IAT1	57	D1	09/24/2020 20:04	1	3.76	3.80	0.14	100.32
	CAUSE CODE 025043 - PULVERIZER FEEDERS							

November 10, 2020
03:02 PM

**Every GADs
Analysis & Reporting
Standard Reports**

Event Details Report
October 2020 Through October 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
2020								
IAT1	58	RS	10/06/2020 07:31	1	100.00	32.52	32.52	22,774.67
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	60	RS	10/12/2020 07:32	1	100.00	30.05	30.05	21,047.02
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	61	RS	10/18/2020 03:55	1	100.00	28.93	28.93	20,264.91
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	62	NC	10/22/2020 06:09	1	0.00	19.87	0.00	0.00
	CAUSE CODE 1900 - BOILER PERFORMANCE TESTING							
IAT1	63	NC	10/22/2020 16:05	1	0.00	6.08	0.00	0.00
	CAUSE CODE 1900 - BOILER PERFORMANCE TESTING							
IAT1	64	NC	10/23/2020 16:01	1	0.00	5.82	0.00	0.00
	CAUSE CODE 1900 - BOILER PERFORMANCE TESTING							
IAT1	65	NC	10/24/2020 16:37	1	0.00	8.80	0.00	0.00
	CAUSE CODE 1900 - BOILER PERFORMANCE TESTING							
IAT1	66	NC	10/25/2020 17:04	1	0.00	8.07	0.00	0.00
	CAUSE CODE 1900 - BOILER PERFORMANCE TESTING							
IAT1	70	NC	10/29/2020 18:55	1	0.00	7.70	0.00	0.00
	CAUSE CODE 1900 - BOILER PERFORMANCE TESTING							
IAT1	67	D1	10/30/2020 09:05	1	42.88	3.85	1.65	1,158.54
	CAUSE CODE 108054 - ECONOMIZER LEAKS							
IAT1	68	NC	10/30/2020 17:16	1	0.00	8.10	0.00	0.00
	CAUSE CODE 1900 - BOILER PERFORMANCE TESTING							

**Energy GADS
Analysis & Reporting
Standard Reports**

October 2020 Through October 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
IAT1	89	NC	10/31/2020 17:02	1	0.00	8.23	0.00	0.00
CAUSE CODE 1990 - BOILER PERFORMANCE TESTING								

**Energy GADS
Analysis & Reporting
Standard Reports**

November 2020 Through November 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT1	72	RS	11/09/2020 09:46	1	100.00	32.28	32.28	22,811.25
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	71	U1	11/12/2020 19:42	1	100.00	81.93	81.93	57,386.11
	CAUSE CODE 108054 - ECONOMIZER LEAKS							
IAT1	73	RS	11/13/2020 20:06	1	100.00	24.38	24.38	17,078.09
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	74	U1	11/15/2020 04:17	1	100.00	32.20	32.20	22,552.88
	CAUSE CODE 108054 - ECONOMIZER LEAKS							
IAT1	75	RS	11/19/2020 08:06	1	100.00	99.82	99.82	69,811.59
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	76	RS	11/24/2020 16:04	1	100.00	27.17	27.17	19,027.53
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	77	U1	11/25/2020 12:07	1	100.00	11.85	11.85	8,299.74
	CAUSE CODE 4281T1 - TURBINE CONTROL VALVES							

**Energy GADS
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Standard Reports**

December 2020 Through December 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
IAT1	89	D1	12/28/2020 08:01	1	5.18	15.52	0.81	564.81
	CAUSE CODE 030070 - PULVERIZER MOTORS AND DRIVES							
IAT1	90	D1	12/31/2020 23:59	1	20.90	63.87	13.35	9,350.08
	CAUSE CODE 031089 - PULVERIZER MILLS							

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December 2020 Through December 2020

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT1	78	D1	12/02/2020 20:48	1	24.47	18.40	4.50	3,153.76
	CAUSE CODE 025050 - SEAL AIR SYSTEM (AIR TO PULVERIZERS)							
IAT1	79	D1	12/10/2020 16:33	1	4.34	7.90	0.34	240.10
	CAUSE CODE 034012 - OTHER PULVERIZER PROBLEMS							
IAT1	80	D1	12/13/2020 10:22	1	5.20	39.85	2.07	1,450.54
	CAUSE CODE 030070 - PULVERIZER MOTORS AND DRIVES							
IAT1	81	D1	12/14/2020 13:09	1	20.90	28.78	5.60	3,921.08
	CAUSE CODE 025081 - PULVERIZER FEEDERS							
IAT1	82	D1	12/18/2020 01:12	1	5.20	84.05	4.37	3,059.42
	CAUSE CODE 030070 - PULVERIZER MOTORS AND DRIVES							
IAT1	83	RS	12/19/2020 07:44	1	100.00	30.53	30.53	21,385.55
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	84	D1	12/22/2020 12:25	1	5.20	78.68	3.99	2,791.27
	CAUSE CODE 030070 - PULVERIZER MOTORS AND DRIVES							
IAT1	85	RS	12/23/2020 15:53	1	100.00	27.47	27.47	19,237.85
	CAUSE CODE 0000 - RESERVE SHUTDOWN							
IAT1	86	D1	12/24/2020 14:57	1	58.60	14.95	8.46	5,926.18
	CAUSE CODE 148048 - OTHER INDUCED DRAFT FAN PROBLEMS							
IAT1	87	D1	12/26/2020 14:01	1	5.20	47.07	2.45	1,713.23
	CAUSE CODE 030070 - PULVERIZER MOTORS AND DRIVES							
IAT1	88	D1	12/28/2020 16:30	1	20.90	50.48	10.55	7,390.76
	CAUSE CODE 025082 - PULVERIZER FEEDERS							

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT2	6	RS	04/08/2020 07:07	1	100.00	127.12	127.12	111,089.78
CAUSE CODE 0000 - RESERVE SHUTDOWN								
IAT2	7	U1	04/08/2020 13:49	1	100.00	2.45	2.45	2,158.45
CAUSE CODE 0890T1 - OTHER FEEDWATER PROBLEMS DOWNSTREAM OF FEEDWATER REGULATING VALVE								
IAT2	8	U1	04/07/2020 17:49	1	100.00	28.00	28.00	24,668.00
CAUSE CODE 341557 - FEEDWATER PUMP/DRIVE LUBE OIL SYSTEM								
IAT2	9	U1	04/08/2020 07:30	1	100.00	9.23	9.23	8,134.57
CAUSE CODE 1740T1 - BOILER GAGE GLASSES / LEVEL INDICATOR								
IAT2	10	U1	04/08/2020 07:30	1	100.00	24.00	24.00	21,144.00
CAUSE CODE 341557 - FEEDWATER PUMP/DRIVE LUBE OIL SYSTEM								
IAT2	11	MO	04/12/2020 18:27	1	100.00	80.95	80.95	71,316.95
CAUSE CODE 1000 - WATERWALL (FURNACE WALL) LEAKS								
IAT2	12	RS	04/15/2020 14:44	1	100.00	70.28	70.28	61,919.62
CAUSE CODE 0000 - RESERVE SHUTDOWN								
IAT2	13	RS	04/30/2020 24:00	1	100.00	103.63	103.63	91,300.97
CAUSE CODE 0000 - RESERVE SHUTDOWN								

**Energy GADS
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UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT2	13	RS	05/02/2020 07:06	1	100.00	31.10	31.10	27,309.10
CAUSE CODE 0000 - RESERVE SHUTDOWN								

**Every GADS
Analysis & Reporting
Standard Reports**

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT2	14	RS	06/09/2020 16:16	1	100.00	85.20	85.20	75,061.20
CAUSE CODE 0000 - RESERVE SHUTDOWN								

**Everyday GADS
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Standard Reports**

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATETIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT2	15	D1	07/19/2020 23:00	1	1.70	7.47	0.13	112.00
	CAUSE CODE 0201E0 - OTHER FUEL QUALITY PROBLEMS (NOT OMC)							
IAT2	17	D1	07/22/2020 23:18	1	3.74	4.38	0.10	144.05
	CAUSE CODE 0201E0 - OTHER FUEL QUALITY PROBLEMS (NOT OMC)							
IAT2	18	D1	07/23/2020 11:34	1	2.31	0.43	0.01	9.10
	CAUSE CODE 0201E0 - OTHER FUEL QUALITY PROBLEMS (NOT OMC)							
IAT2	19	D1	07/28/2020 11:00	1	19.74	2.87	0.57	408.80
	CAUSE CODE 025012 - PULVERIZER FEEDERS							
IAT2	21	D1	07/30/2020 19:00	1	31.91	2.93	0.94	824.27
	CAUSE CODE 420354 - TURBINE HYDRAULIC SYSTEM PIPES AND VALVES							
IAT2	22	U1	07/31/2020 24:00	1	100.00	29.00	29.00	25,549.00
	CAUSE CODE 4203T1 - TURBINE HYDRAULIC SYSTEM PIPES AND VALVES							

**Energy GADS
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UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
2020								
IAT2	22	U1	08/01/2020 07:16	1	100.00	7.27	7.27	6,401.93
CAUSE CODE 4203T1 - TURBINE HYDRAULIC SYSTEM PIPES AND VALVES								
IAT2	23	RS	08/02/2020 02:50	1	100.00	19.57	19.57	17,238.23
CAUSE CODE 0000 - RESERVE SHUTDOWN								
IAT2	24	U1	08/22/2020 07:15	1	100.00	240.93	240.93	212,262.27
CAUSE CODE 3620T1 - MAIN TRANSFORMER								
IAT2	25	RS	08/23/2020 06:18	1	100.00	23.05	23.05	20,307.05
CAUSE CODE 0000 - RESERVE SHUTDOWN								

**Energy GADS
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Standard Reports**

UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT2	28	PO	09/30/2020 24:00	1	100.00	215.32	215.32	189,693.98
CAUSE CODE 363153 - 400-700-VOLT CIRCUIT BREAKERS								

**Energy GADS
Analysis & Reporting
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UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT2	26	PO	10/31/2020 24:00	1	100.00	744.00	744.00	655,464.00
CAUSE CODE 363153 - 400-700-VOLT CIRCUIT BREAKERS								

**Energy GADS
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UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWHrs
2020								
IAT2	26	PO	11/05/2020 18:05	1	100.00	139.08	139.08	122,532.42
CAUSE CODE 363153 - 400-700-VOLT CIRCUIT BREAKERS								
IAT2	27	RS	11/09/2020 08:00	1	100.00	60.07	60.07	52,018.73
CAUSE CODE 0000 - RESERVE SHUTDOWN								
IAT2	28	D1	11/09/2020 13:56	1	22.32	1.02	0.23	200.28
CAUSE CODE 025009 - PULVERIZER FEEDERS								
IAT2	30	RS	11/20/2020 10:22	1	100.00	56.18	56.18	49,407.52
CAUSE CODE 0000 - RESERVE SHUTDOWN								
IAT2	29	RS	11/27/2020 07:17	1	100.00	101.10	101.10	89,069.10
CAUSE CODE 0000 - RESERVE SHUTDOWN								

**Everyday GADS
Analysis & Reporting
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UNIT	EVENT NO	EVENT TYPE	END OF EVENT DATE/TIME	EVENT CONTR CODE	PER CENT DERATING (%)	TOTAL EVENT DURATION (Hours)	EQUIVALENT DERATED HOURS	EQUIVALENT DERATED MWhrs
2020								
IAT2	31	RS	12/25/2020 07:02	1	100.00	52.95	52.95	46,648.95
CAUSE CODE 0000 - RESERVE SHUTDOWN								
IAT2	32	U1	12/25/2020 15:49	1	100.00	6.33	6.33	5,579.07
CAUSE CODE 0770T1 - OTHER BOILER RECIRCULATION PROBLEMS								
IAT2	33	U1	12/26/2020 12:00	1	100.00	20.18	20.18	17,781.52
CAUSE CODE 447001 - TURBINE DIFFERENTIAL EXPANSION								
IAT2	34	RS	12/26/2020 17:55	1	100.00	5.92	5.92	5,212.58
CAUSE CODE 0000 - RESERVE SHUTDOWN								

8.4 Monthly GADS Event Data

Plum Point -SERC Event Report

1/01/2020 To 12/31/2020												
Event Start	Event End	Event Duration	Eq Hrs	Event Num	Event Index	Event Type	Event Red	Event Cap	Cause Code	Amp Code	Fail Code	Event Description
2/22/20 2:35	2/22/20 20:20	17.75	17.75	1	1	U1	680	0	3972	T1		Failure of DCS Card
3/10/20 7:00	3/10/20 14:32	7.53	1.99	2	1	D4	180	500	1980			Safety Valve Testing
3/11/20 7:00	3/11/20 12:40	5.67	0.17	3	1	D4	20	660	1980			Safety Valve Testing
4/3/20 23:58	4/24/20 23:21	503.38	503.38	4	1	PO	680	0	8812			Planned Spring Outage
4/25/20 17:02	4/27/20 22:31	53.48	53.48	5	1	U1	680	0	3530	T1		#5 Heater Extraction Turbine Side Drain Failure
5/6/20 7:39	5/6/20 9:59	2.33	1.13	8	1	D1	330	350	3410			Loss of Boiler Feed Pump B due to Min Flow
5/6/20 13:00	5/7/20 13:40	24.67	0.72	9	1	D1	20	660	3441			Feedwater Heater #5 Relief Valve Failure
5/14/20 6:03	5/14/20 8:35	2.53	0.67	10	1	D4	180	500	1980			Relief Valve Testing
5/18/20 9:01	5/18/20 13:01	4	2.03	7	1	D4	345	335	9999			Unit Testing/Tuning
5/19/20 10:00	5/19/20 13:00	3	1.52	11	1	D4	345	335	9999			Unit Testing and Tuning
5/19/20 13:00	5/19/20 16:00	3	0.79	12	1	D4	180	500	9999			Unit Testing and Tuning
5/20/20 5:00	5/20/20 7:32	2.53	1.28	13	1	D4	345	335	9999			Unit Testing and Tuning
5/20/20 7:32	5/20/20 10:11	2.65	1.54	14	1	D4	395	285	9999			Unit Testing and Tuning
5/20/20 10:11	5/20/20 12:54	2.72	1.38	15	1	D4	345	335	9999			Unit Testing and Tuning
5/20/20 12:54	5/20/20 15:00	2.1	1.22	16	1	D4	395	285	9999			Unit Testing and Tuning
5/20/20 15:00	5/20/20 17:37	2.62	1.33	17	1	D4	345	335	9999			Unit Testing and Tuning
5/21/20 3:00	5/21/20 9:00	6	2.6	18	1	D4	295	385	9999			Unit Testing and Tuning
5/21/20 9:00	5/21/20 18:35	9.58	0.63	19	1	D4	45	635	9999			Unit Testing and Tuning
5/22/20 4:47	5/22/20 7:43	2.93	0.99	20	1	D4	230	450	9999			Unit Testing and Tuning
5/22/20 7:43	5/22/20 12:40	4.95	0.33	21	1	D4	45	635	9999			Unit Testing and Tuning
5/23/20 4:53	5/23/20 8:05	3.2	1.08	22	1	D4	230	450	9999			Unit Testing and Tuning
5/23/20 8:05	5/23/20 11:54	3.82	0.25	23	1	D4	45	635	9999			Unit Testing and Tuning
5/24/20 4:55	5/24/20 7:04	2.15	1.09	24	1	D4	345	335	9999			Unit Testing and Tuning
5/24/20 7:04	5/24/20 10:00	2.93	1.72	25	1	D4	400	280	9999			Unit Testing and Tuning
5/24/20 10:00	5/24/20 10:57	0.95	0.48	26	1	D4	345	335	9999			Unit Testing and Tuning
5/24/20 10:57	5/24/20 15:00	4.05	1.37	27	1	D4	230	450	9999			Unit Testing and Tuning
5/24/20 15:00	5/24/20 16:00	1	0.19	28	1	D4	130	550	9999			Unit Testing and Tuning
5/24/20 16:00	5/24/20 16:16	0.27	0.06	29	1	D4	155	525	9999			Unit Testing and Tuning
5/24/20 16:16	5/24/20 16:45	0.48	0.13	30	1	D4	180	500	9999			Unit Testing and Tuning
5/24/20 16:45	5/24/20 17:04	0.32	0.09	31	1	D4	195	485	9999			Unit Testing and Tuning
5/24/20 17:04	5/24/20 17:23	0.32	0.08	32	1	D4	170	510	9999			Unit Testing and Tuning
5/24/20 17:23	5/24/20 17:38	0.25	0.05	33	1	D4	145	535	9999			Unit Testing and Tuning
5/24/20 17:38	5/24/20 17:45	0.12	0.02	34	1	D4	130	550	9999			Unit Testing and Tuning
5/24/20 17:45	5/24/20 18:01	0.27	0.06	35	1	D4	145	535	9999			Unit Testing and Tuning

Plum Point -SERC Event Report

1/01/2020 To 12/31/2020												
Event Start	Event End	Event Duration	Eq Hrs	Event Num	Event Index	Event Type	Event Red	Event Cap	Cause Code	Amp Code	Fail Code	Event Description
5/25/20 4:51	5/25/20 7:02	2.18	1.11	36	1	D4	345	335	9999			Unit Testing and Tuning
5/25/20 7:02	5/25/20 10:00	2.97	1.74	37	1	D4	400	280	9999			Unit Testing and Tuning
5/25/20 10:00	5/25/20 14:45	4.75	1.68	38	1	D4	240	440	9999			Unit Testing and Tuning
5/25/20 14:45	5/25/20 14:59	0.23	0.07	39	1	D4	210	470	9999			Unit Testing and Tuning
5/25/20 14:59	5/25/20 16:02	1.05	0.37	40	1	D4	240	440	9999			Unit Testing and Tuning
5/25/20 16:02	5/25/20 16:29	0.45	0.14	41	1	D4	210	470	9999			Unit Testing and Tuning
5/25/20 16:29	5/25/20 17:10	0.68	0.24	42	1	D4	240	440	9999			Unit Testing and Tuning
5/25/20 17:10	5/25/20 17:40	0.5	0.14	43	1	D4	190	490	9999			Unit Testing and Tuning
5/26/20 4:47	5/26/20 8:55	4.13	1.22	44	1	D4	200	480	9999			Unit Testing and Tuning
5/26/20 8:55	5/26/20 9:36	0.68	0.17	45	1	D4	170	510	9999			Unit Testing and Tuning
5/26/20 9:36	5/26/20 10:50	1.23	0.2	46	1	D4	110	570	9999			Unit Testing and Tuning
5/26/20 10:50	5/26/20 11:30	0.67	0.14	47	1	D4	140	540	9999			Unit Testing and Tuning
5/26/20 11:30	5/26/20 12:11	0.68	0.1	48	1	D4	95	585	9999			Unit Testing and Tuning
5/26/20 12:11	5/26/20 13:04	0.88	0.09	49	1	D4	70	610	9999			Unit Testing and Tuning
5/26/20 13:04	5/26/20 13:45	0.68	0.04	50	1	D4	40	640	9999			Unit Testing and Tuning
5/26/20 13:45	5/26/20 15:48	2.05	0.21	51	1	D4	70	610	9999			Unit Testing and Tuning
5/26/20 15:48	5/26/20 16:13	0.42	0.02	52	1	D4	40	640	9999			Unit Testing and Tuning
5/26/20 16:13	5/26/20 16:45	0.53	0.06	53	1	D4	70	610	9999			Unit Testing and Tuning
5/26/20 16:45	5/26/20 17:33	0.8	0.05	54	1	D4	40	640	9999			Unit Testing and Tuning
5/27/20 5:09	5/27/20 7:21	2.2	1.12	55	1	D4	345	335	9999			Unit Testing and Tuning
5/27/20 7:21	5/27/20 9:15	1.9	1.09	56	1	D4	390	290	9999			Unit Testing and Tuning
5/27/20 9:15	5/27/20 10:45	1.5	0.73	57	1	D4	330	350	9999			Unit Testing and Tuning
5/27/20 10:45	5/27/20 13:43	2.97	0.37	58	1	D4	85	595	9999			Unit Testing and Tuning
5/27/20 15:00	5/27/20 16:04	1.07	0.1	59	1	D4	65	615	9999			Unit Testing and Tuning
5/27/20 17:00	5/27/20 17:57	0.95	0.09	60	1	D4	65	615	9999			Unit Testing and Tuning
5/28/20 14:44	6/3/20 11:21	140.62	140.62	61	1	U1	680	0	890	T1		Loss of Bottom Ash Drag Chain
6/4/20 5:00	6/4/20 17:00	12	1.76	71	1	PD	100	580	9999			Unit Testing
6/5/20 4:53	6/5/20 11:10	6.28	0.92	72	1	PD	100	580	9999			Unit Testing
6/18/20 14:15	6/18/20 18:14	3.98	0.52	62	1	D4	88	592	9999			Incremental Heat Rate Testing
6/19/20 5:00	6/19/20 10:20	5.33	3.06	63	1	D4	390	290	9999			Incremental Heat Rate Testing
6/19/20 10:20	6/19/20 14:00	3.67	1.86	64	1	D4	345	335	9999			Incremental Heat Rate Testing
6/19/20 14:00	6/19/20 17:27	3.45	1.22	65	1	D4	240	440	9999			Incremental Heat Rate Testing
6/20/20 5:01	6/20/20 10:00	4.98	2.86	66	1	D4	390	290	9999			Incremental Heat Rate Testing
6/20/20 10:00	6/20/20 13:30	3.5	1.78	67	1	D4	345	335	9999			Incremental Heat Rate Testing
6/20/20 13:30	6/20/20 20:22	6.87	2.42	68	1	D4	240	440	9999			Incremental Heat Rate Testing
6/21/20 4:59	6/21/20 10:40	5.68	3.26	69	1	D4	390	290	9999			Incremental Heat Rate Testing
6/21/20 10:40	6/21/20 21:04	10.4	3.67	70	1	D4	240	440	9999			Incremental Heat Rate Testing
7/20/20 0:47	7/20/20 8:02	7.25	4.26	73	1	D1	400	280	300			Loss of Comms to Mill Motors
7/20/20 8:02	7/20/20 9:53	1.85	0.94	74	1	D1	345	335	300			Loss of Comms to Mill Motors

Plum Point -SERC Event Report

1/01/2020 To 12/31/2020												
Event Start	Event End	Event Duration	Eq Hrs	Event Num	Event Index	Event Type	Event Red	Event Cap	Cause Code	Amp Code	Fall Code	Event Description
8/12/20 12:47	8/23/20 15:05	266.3	266.3	75	1	U1	680	0	4730	T1		Generator PT Failure
8/27/20 22:06	8/28/20 20:23	22.28	7.86	76	1	D1	240	440	250			Loss of Echo Mill Feeder
8/28/20 21:18	8/29/20 14:19	17.02	6.01	77	1	D1	240	440	250			Loss of Echo Mill Feeder
10/7/20 9:38	10/14/20 17:06	175.47	175.47	78	1	U1	680	0	1488	T1		Loss of B RAH Gear Box
10/19/20 15:05	10/19/20 15:32	0.45	0.18	79	1	D1	280	400	890			Loss of Bottom Ash Drag Chain
11/1/20 16:25	11/1/20 17:16	0.85	0.3	80	1	D1	240	440	1799			Loss of E Mill Due to Instrumentation
11/4/20 22:46	11/4/20 23:28	0.7	0.25	81	1	D1	240	440	1710			Loss of Flame Scanners to C Mill
11/5/20 14:45	11/6/20 9:07	18.37	18.37	82	1	U1	680	0	3649	T1		Loss of Power Supply to MCC-212
11/7/20 15:52	11/7/20 17:38	1.77	0.47	83	1	D1	180	500	3270			Loss of River Water Pump
12/1/20 13:48	12/4/20 10:20	68.53	68.53	84	1	U1	680	0	3643	T1		Loss of Both Inverters
12/11/20 20:25	12/11/20 21:15	0.83	0.29	85	1	D1	235	445	250			Loss of Echo Mill

1. Report on all generating units available for operation.
2. Compute heat rates on basis of total fuel burned on each unit including burner lighting, banking fuel and spinning fuel.
3. Yearly Capacity Factor in percent =

$$\frac{\text{Total Kilowatt Hours Generated}}{\text{Kilowatt Capacity of Unit (name plate rating)} \times 8760} \times 100$$

Plant Name	Unit No.	MW	B.f.u. Per Net Kwh	Net Gen. Kwh x 10 ⁶	Capacity Factor	Major Fuel
Asbury-Retired 3/31/2020	1	200	-	(9.318)	-0.53%	Coal
Asbury-Retired 2013	2					
Riverton-Retired 6/30/2014	7					
Riverton-Retired 6/30/2015	8					
Riverton-Retired 6/30/2015	9					
Riverton	10	13	19,442	1.863	1.63%	Gas
Riverton	11	15	19,950	0.522	0.40%	Gas
Riverton	12	283	7,140	1,472.568	59.24%	Gas
Energy Center	1	82	15,883	68.465	9.51%	Gas
Energy Center	2	88	16,289	66.039	8.54%	Gas
Energy Center	3	60	11,254	65.469	12.42%	Gas
Energy Center	4	58	11,547	36.060	7.08%	Gas
State Line	1	105	12,112	125.494	13.61%	Gas
SLCC (60% Ownership)	1	333	7,269	1,517.124	53.67%	Gas
Iatan (12% Ownership)	1	84	10,637	229.563	31.11%	Coal
Iatan (12% Ownership)	2	108	9,212	567.278	59.80%	Coal
Plum Point (7.52% Ownership)	1	51	10,212	217.407	48.53%	Coal
Ozark Beach *	1	16	N/A	29.194	20.77%	N/A
* Generation for all units (5,6,7,8) on a common meter.						

AVERAGE ANNUAL HEAT RATES, NET KWH OUTPUT AND CAPACITY FACTORS

(Continuation Sheet)

Plant Name	Unit No.	MW	B.t.u. Per Net Kwh	Net Gen. Kwh $\times 10^6$	Capacity Factor	Major Fuel
None						

Name of Company The Empire District Electric CompanyTime Period 2021-2025

FUTURE SALES, LOADS, & RESOURCES PER DOCKET NO. U-2897
-- ELECTRIC UTILITIES --

1. Provide the following information relating to generating plants, both existing and proposed, (and associated fuel supply and other facilities) with a capacity of 50 MW or more to be used to supply system demands during the next five (5) calendar years:

(a & b) Name & Location of Plant	Date		(e) Plant Ownership	
	(c) Const. Beg.	(d) Plant in Service Date	% Owned	Other Owners (if Applicable)
<u>Existing:</u>				
Riverton Plant (10 & 11 - CT)**** Riverton, Kansas	1963	Jun 1, 1970	100%	
Riverton Plant (12 - CT & CC) Riverton, Kansas	2005	2016	100%	
Asbury Plant (Retired 3/31/2020) Asbury, Missouri	Apr 1968	Jun 1, 1970	100%	
Empire Energy Center LaRussell, Missouri	Jul 1977	Feb 24, 1978	100%	
Iatan I Plant Weston, Missouri	Jan 1976	May 5, 1980	12%	Kansas City Power & Light
Iatan II Plant Weston, Missouri	2006	Dec 31, 2010	12%	Kansas City Power & Light
Stateline Plant (CT) Joplin, Missouri	Jun 1994	Jun 1, 1995	100%	
Stateline Plant (CC) Joplin, Missouri	1999	Jun 25, 2001	60%	Westar
Plum Point Plant Osceola, Arkansas	2006	Sep 1, 2010	7.52%	Various
* This is only 12% of the unit's total capacity. ** This is only 60% of the unit's total capacity. *** This is only 7.52% of the unit's total capacity. **** Riverton Unit 7 retired 6/30/2014. Riverton Unit 8 & 9 retired 6/30/2015. Asbury retired 3/31/2020.				

Name of Company The Empire District Electric Company Time Period 2021-2025**FUTURE SALES, LOADS, & RESOURCES PER DOCKET NO. U-2897
-- ELECTRIC UTILITIES --**

1. Continued

(f) Plant Capacity (MW)	(g) % Plant Capacity Available to Meet Firm Demands	(h) Plant Type	(i) Fuel Type	(j) Net Heat Rate	(k) Cost of Plant	(l) Plant Cost Per KW Capacity
28	100%	Combustion Turbine	Gas	19,554	\$50,227,561	\$1,793.84
283	100%	CT & CC	Gas	7,140	\$221,488,694	\$782.65
200	100%	Steam	Coal	0	\$147,282,551	\$736.41
288	100%	Combustion Turbine	Gas/Oil	14,050	\$94,972,524	\$329.77
84*	100%	Steam	Coal	10,637	\$120,456,030	\$1,434.00
108*	100%	Steam	Coal	9,212	\$241,185,441	\$2,233.20
105	100%	Combustion Turbine	Gas/Oil	12,112	\$42,536,364	\$405.11
333**	100%	Combined Cycle	Gas	7,269	\$160,703,885	\$482.59
51***	100%	Steam	Coal	10,212	\$100,803,158	\$1,976.53

Time Period 2020-2021

2. Provide the following information relating to electric transmission lines (and associated facilities including substations) of a design voltage of 100 KV or more extending more than 10 miles and /or of 170 KV or more extending 1 mile to be used to supply system demands during the next two (2) calendar years:

(a) Line Size	(b) Line Distance	(c) Route of Line	(d) Purpose of Line	(e) Cost of Line	(k) Cost of Plant	Substations	
						(f) Number	(g) Location
N/A							

Name of Company The Empire District Electric Company Time Period 2020-2021

FUTURE SALES, LOADS, & RESOURCES PER DOCKET NO. U-2897
-- ELECTRIC UTILITIES --

2. Continued

(h) Date Const. Began/Begins	(i) Date to be Placed in Service	Line Ownership	
		(j)	
		% Owned	Other Owners (if applicable)
N/A			

Name of Company The Empire District Electric CompanyTime Period 2021-2022

FUTURE SALES, LOADS, & RESOURCES PER DOCKET NO. U-2897
-- ELECTRIC UTILITIES --

3. Provide by consumer classes (include residential or domestic sales, commercial sales, industrial sales, public street and highway lighting sales, other sales to public authorities, sales or resale, interdepartmental sales) forecasts of the following for the next two (2) calendar years:

Year	(a) Customer Class	(b) Avg. No. of Customers	(c) Sales Kwh	(d) System Peak Demand (kw)	(e) Non-Coincidental Peak Demand (kw)
2021	Residential	*	1,898,326,576	441,683	547,672
	Commercial	*	1,585,620,061	368,926	313,063
	Industrial	*	1,213,079,540	282,247	167,779
	St Lighting	*	24,779,160	5,765	5,378
	Pub Auth	*	103,548,330	24,093	18,807
	Interdept	*	3,107,260	723	497
	Wholesale	*	11,015,550	2,563	2,234
	Total	177,779	4,839,476,477	1,126,000	1,055,430
2022	Residential	*	1,896,785,506	444,649	547,227
	Commercial	*	1,588,048,365	372,275	313,542
	Industrial	*	1,243,766,080	291,566	172,024
	St Lighting	*	24,971,910	5,854	5,420
	Pub Auth	*	103,856,640	24,346	18,863
	Interdept	*	3,107,260	728	497
	Wholesale	*	11,015,550	2,582	2,234
	Total	179,098	4,871,551,311	1,142,000	1,059,807

*These numbers are the total company projection for Empire District Electric Company.

Name of Company The Empire District Electric Company Time Period 2021-2022

FUTURE SALES, LOADS, & RESOURCES PER DOCKET NO. U-2897
-- ELECTRIC UTILITIES --

3. Continued

(f) Average Annual Load factor (Based on System Peak Demand)	(g) Average Annual Load factor (Based on Non-Coincidental Peak Demand)	(h) % Line Losses
0.5276	0.4255	6.423%
0.5276	0.6217	6.423%
0.5276	0.8875	6.423%
0.5276	0.5656	6.423%
0.5276	0.6758	6.423%
0.5276	0.7672	6.423%
0.5276	0.6053	6.423%
0.5276	0.5628	6.423%
0.5236	0.4255	6.423%
0.5236	0.6217	6.423%
0.5236	0.8875	6.423%
0.5236	0.5656	6.423%
0.5236	0.6758	6.423%
0.5236	0.7672	6.423%
0.5236	0.6053	6.423%
0.5236	0.5642	6.423%

Name of Company The Empire District Electric Company Time Period 2021-2022

FUTURE SALES, LOADS, & RESOURCES PER DOCKET NO. U-2897
-- ELECTRIC UTILITIES --

4. Provide forecasts of the following for the next two (2) calendar years in kilowatts (beginning January 1):

Year	(a) System Peak Demand	(b) Power Sources to Meet System Peak Demand ¹	(c) Reserves (Average System & at System Peak)
2021	1,126	1,343	749 217
2022	1,142	1,343	745 201

¹ To include self-owned generating capability identified by plant, firm and non-firm purchases identified by contract.

Name of Company The Empire District Electric CompanyTime Period 2021-2022**FUTURE SALES, LOADS, & RESOURCES PER DOCKET NO. U-2897
-- ELECTRIC UTILITIES --**

5. Describe methodology used in forecasts in sufficient detail to allow replication by a third party. Include graphs and formulae if appropriate.

Reference Number 3 a - h.

Reference Number 4a and 4c.

Forecast Overview

The Empire District Electric Company forecasts energy and demand utilizing the Ordinary Least Squares (OLS) method of regression analysis. Regression models are developed to forecast both peak demand and system energy.

The monthly peak demand regression model captures weather sensitivity using 3-day weighted average temperature for summer months (June - September) and 3-day weighted average temperature at the peak hour for the winter months. Peak growth is captured by including historical growth trend variables. The maximum load value in each historical month is the dependent variable.

The On-System energy is forecast using a top-down approach. The system energy forecast uses a regression model that captures weather sensitivity using heating and cooling degree days and growth based on customer count trends. Class energy is forecast using regression models driven by heating and cooling degree days and customer count trends. Class energy regression results are calibrated to the system energy.

REPORT TO ARKANSAS PUBLIC SERVICE COMMISSION

CHECK LIST

Company Name The Empire District Electric Company

Instructions: In the space provided, please enter the appropriate amounts from the Annual Report to the APSC and the FERC Form 1. Any differences should be fully explained. Any differences between ending figures from last year's annual report and beginning balances in this year's annual report should be fully explained.

Description	Annual Report Amount	FERC Form 1 Amount	Difference
Total Electric Plant-in-Service			
Beginning Balance	3,013,492,263	3,013,492,263	-
Ending Balance	2,939,606,902	2,939,606,902	-

STATEMENT OF ACCURACY

I do hereby state that the amounts contained in this report are true and accurate, schedules have been cross-referenced by use of the attached check list, and that the accuracy of all totals has been verified by me or under my supervision. Should I or anyone under my supervision become aware of any error in or omission from this report, I will take steps to notify the Arkansas Public Service Commission of such error or omission and provide corrected schedules as soon as possible.



President/General Manager

COMPANY CONTACTS

Company Information	
Company Name	The Empire District Electric Company
dba	
Official Mailing Address	602 Joplin Ave, PO Box 127 Joplin MO 64802
Mailing Address for APSC Annual Assessment Invoice	602 Joplin Ave, PO Box 127 Joplin MO 64802

AREA	PERSON TO CONTACT	PHONE #	FAX #	E-MAIL
Annual Report	T Sanderson	417-625-5100	417-625-5173	tisha.sanderson@libertyutilities.com
APSC Annual Assessment	T Sanderson	417-625-5100	417-625-5173	tisha.sanderson@libertyutilities.com
Fuel Adjustment Report	T Sanderson	417-625-5100	417-625-5173	tisha.sanderson@libertyutilities.com
Cost of Debt Report	T Sanderson	417-625-5100	417-625-5173	tisha.sanderson@libertyutilities.com
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Data Processing	T Sanderson	417-625-5100	417-625-5173	tisha.sanderson@libertyutilities.com

Please list the number of utility employees located in Arkansas

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